



2009 *FIRST* LEGO® League
U.S. Open Championship

Team Information Book



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Team 1

TechBrick Robotics

New Covenant Christian Academy

Forest Hill, MD

Coach: Marco Ciavolino



Mentors: Marco Ciavolino, Debbie Dininno, Barb Hruz, KC McLanahan

Robot's Name: Parrot Express



Team Members

Doug Beach
Nate Bero
Jonathan Ciavolino
Cole Dininno
Ollie Dininno
Ryan Hruz
Alie Hruz
Caitlin McLanahan
Andrei Shulgach
Nathan Wyand

www.techbrick.com

Where they are in the Pits: Woods

What Alliance they are part of: Bulldogs

Representing

Maryland State FLL Championship



Fun Facts

- * 2 sets of siblings
- * All Homeschooled
- * Mix of new and experienced members
- * Kids from grade 3-8
- * The day we went to Meadowood Regional Park with our team to do our entomology study, it was raining. We had so much fun getting dirty and wet, looking for and identifying bugs.
- * I never knew which end of a leech is the mouth!
- * When we went on the Lady Maryland boat trip I couldn't believe I could learn how to hold a jelly fish and not get stung. I can't wait for the summer when I can surprise my friends!
- * Two of our 11 year olds are in their 4th year of FLL
- * One of our students was in the first JrFLL expo.



Teamwork

- "It takes patience to teach the new or younger members of the team"
- "One person can't do everything"
- "Even the quietest people have good ideas"
- "I had no idea you could determine how clean a stream is by what bugs live in it. When our team did the entomology study, we each had a job, and needed to help each other. Sometimes it was to identify something or to help someone get out of the mud! We put all of our efforts and data together and came up with the answer to a big question."
- "It is huge challenge to maximize each child's strengths and diminish their weaknesses. It teaches many real-world relational lessons within the team."



Project

The TechBrick Tacticians play outdoor sports. They appreciate the fields being very green and well maintained but are concerned now that they know they are highly fertilized and polluting the bay. They visited Meadowood Recreation Facility to observe how they have reduced runoff by buffer zones and rain gardens. There, they did their own stream testing to determine how clean the stream was from an entomology approach. They met with a climatologist and a physicist that gave them further in site to their research project. The team also spent the day on the Chesapeake Bay on the Lady Maryland, a 104' schooner, with a team of scientists learning about how plankton, oysters, crabs and sea life are changing. They had a hands on lesson about runoff and had the opportunity to do some navigating, boat building and even hoisted the sails.



Robot Design

After the Maryland tournament we decided to build a brand new robot. We studied our first robot and its attachments. We took the best parts and incorporated them into our new design. Many of the attachment were built onto the robot to minimize time in base. The robot was built with dual light sensors to help it accurately get around the field. It was also built with a simple and reliable find agreement devise that works on any variation. We designed a detachable plow and several inlays that slide into the plow and are left behind after the mission is complete. The arm has the ability to cover and hold anything inside the plow. The arm also has many long prongs on the front that can lift the buoy, ice core, drilling rig and flood gate. A touch sensor is used to run the programs.

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Team 19

Fossil Fuel Fighters

Independent Group of Friends

Loveland, OH

Coach: Nancy Worsham



Mentors: Matthew Worsham

Robot's Name: Chuck the Fluffy Robot



Team Members

Julie Griffin
Elizabeth Worsham
Cameron Spicer
Thomas Worsham
Margot Harknett
Anna Wassel

www.fossilfuelfighters.com

Where they are in the Pits: **Flowers**

What Alliance they are part of: **Yellow Jackets**

Representing

FLL Ohio State Championship



Fun Facts

One of the fun facts about us is that we have had a top 10+1 (or +2) list of great things about our team on the back of our shirts. Another thing is that at world festival last year, Scott Evans showed us how to work his Rubik's cube. When we emailed him about the hidden numbers on the challenge mat, he said that we were the first team this season to find the hidden message and email him. Our team also loves brownies, but recently, we have decided that homemade chocolate chip cookies are the BEST THING EVER! We also like to use the core value "We have fun" as our motto because that is what we do a lot of at meetings. It's our favorite thing about FLL! Normally we will be seen dancing to the music during robot runs. We like to hop on one foot for good luck.



Teamwork

Teamwork is a very important part of what we do. We don't ever argue robot. When someone has an idea, they just do it and everyone looks at it and decides if it will be helpful or not. If someone needs to change another person's attachment to make it better, no one argues about it, but if it doesn't work out then we change it back. We get everyone's input before we make major decisions and hold votes for all of them. We enjoy being together so it isn't hard to have fun and work together at meetings. In fact, our coaches tell us that we have too much fun and don't get enough work done :) In our research presentation we always give everyone an equally important part so no one feels left out. We stick together as a team all the time.



Project

We really like our solution to our research problem. When the water was 7 feet deep in Nisbet park last year we really did not think much about it, but now we understand why. The pathway from the park to the river acts as a funnel to move water into the low lying areas. That means that the rain water has no where to drain. We found that using a multi-layered solution of water jelly crystals in divots under pervious concrete, an improved non-clogging storm drain and rain gardens could help drain the water faster and hold it in the ground. The slow release of water from the crystals would also keep the ground moist allowing the water to be soaked up more quickly the next time it rains.



Robot Design

Chuck the fluffy robot is our robot's name. He has three motors. Two make it move and one is the arm that moves things around. We have come a long way from last season when we used a robot design from the book. We took the ideas we have seen at all of the competitions we attended designed a robot that worked well for us. Chuck is much more stable this year and won't fall apart. We no longer rely on the arm to the attachments making him more reliable. We also now use light and touch sensors that we did not use last year.

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Team 25

The NXT Force

Homeschool

Columbus, OH

Coach: Kathy Klass



Mentors: Michael Vawter

Robot's Name: Robob Skywalker II



Team Members

Taylor Klass
Reed Klass
Nathan Nahhas
Andrew Nahhas
Emily Pollard
Zach Pollard
Sam Walk
Simon Walk

Where they are in the Pits: Carver

What Alliance they are part of: Raiders

Representing

FLL Ohio State Championship



Fun Facts

We are 4 sibling pairs and all homeschooled. Our team philosophy is based in Proverbs 16:3 " Commit to the Lord whatever you do, and your plans will succeed".

We all participate in all aspects of our team (building,programming,handling, and research)and yet have unique contributions.

We are all Star Wars fans and end most meetings with light saber battles.



Teamwork

It all works better if we listen to each other and it feels good to encourage each other and to be encouraged. Perseverance is a quality that we had to learn this year because the project info was abundant and the missions were difficult.

We did unique team building exercises such as building our own lego table, building bat houses for the farmers and a 3 hour letterbox adventure.



Project

Climate change is a HUGE topic - "Climate is what you expect and weather is what you get" - a quote we learned.

Ohio is a rural and agricultural state-we all had ties to farming in some way so we wanted to help farmers-they loved our ideas! We built bat houses for all the farmers we worked with.

We built an amazing cloud diffusion chamber(in our intense study of clouds) & saw cosmic rays.

We spent 2 hours with an OSU Entemologist learning all about pests and bugs.



Robot Design

We built our robot all together last summer(made minor changes during the season).

The "Chopsticks of Power" COP's are so simple but so powerful- they are also called the "chopsticks of doom"because of their ability to dominate. The team then came to a compromise and calls them the "chopsticks of powerful doom" COPD!

The gearbox , wall aligner wheel and light sensor were new for us this year.

Team 47

Fire Breathing Rubber Duckies

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Village Home Education Resource Center

Portland, OR

Coach: Mark Fitzgerald



Mentors:

Robot's Name: **Imposiblé Quatro**



Team Members

Taytlyn Fitzgerald
Tesca Fitzgerald
Tylise Fitzgerald
Sheila Graves
Sarah Graves
Charlotte Smythe
Kendra Burton

www.firebreathingrubberduckies.org

Where they are in the Pits: **Kamen**

What Alliance they are part of: **Bobcats**

Representing

Intel Oregon FLL Championship



Fun Facts

We Love Rubber Ducks!!!

Each duck on our hats has its own name.

We all love PEZ candy (the ones with the animal shaped dispensers). We each got duck PEZ dispensers. Each PEZ duck is married to another PEZ duck on our team.

We made wedding gowns out of toilet paper. On the days when they got married, we wouldn't start our FLL team meeting until the ceremony was completed.

We Love Sharing the FLL Core Values!!!

We made a song that uses the words of the FLL Core Values to share with other teams. The song is sung to the music of the Macarena. We also made a dance that goes with the song. We hope to share it with the other teams here at the U.S. Open.



Teamwork

We Shared the FLL Experience with Others

The Fire Breathing Rubber Duckies spent 198 hours on 30 projects promoting FIRST Lego League throughout the community this year.

Events included:

- Testified before Oregon legislature regarding the benefits of FLL
- "O" Magazine Interview
- Multiple demonstrations at various elementary schools
- Volunteered at JrFLL Competition
- Filmed & edited commercial for broadcast on public access TV
- Multiple demonstrations at various Girl Scouts events
- Big Brothers Big Sisters Annual Picnic
- FIRST President's Circle FLL Commercial
- Oregon Museum of Science and Industry FIRST Event Day
- Cultural exchange with students from Singapore



Project

Problem Statement:

An increase in temperatures is negatively impacting Bonneville Lock and Dam's ability to generate power. As the snow from Mt. Hood is melting faster and earlier in the year, the Bonneville Dam's peak in electrical production is occurring in the spring, rather than the summer when the electricity is needed most.

Solution - Super Solar Tool Shed:

The Super Solar Tool Shed helps Bonneville Dam during the summer because it conserves electricity, generates its own power, doesn't use gasoline, doesn't pollute, and allows excess power to be uploaded to the home.

General FLL Outreach:

We shared our presentation 8 times, including the Alberta Rider Elementary School, Girl Scouts at various events, Portland WhizKids, and students and parents at Village Home Education Resource Center. We also filmed and edited our presentation for televised broadcast on TVCTV. We also have a website at www.FireBreathingRubberDuckies.org.



Robot Design

Movable Drive Train

- Change gear ratios "on the fly"
- Operate two attachments simultaneously

Interchangeable Bases

- Shorten our change-out times from one attachment to another

Generic Programming

- Instructions contained in text files take up very little space

• Time is not wasted waiting for programs to compile and download to the NXT

Artificial Intelligence

- The robot can create its own accurate and optimal routes

• 321 hours spent to develop the software

• Incorporates human-like decision making process which works better than Alpha-Beta Pruning method

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Team 122

Ice Wolves

Trident Technical College

Charleston, SC

Coach: [Stephanie Piness](#)



Mentors: [Kendall Nowacin \(Y\)](#)

Robot's Name: [Jello](#)



Team Members

Hal Kroninger
Liam Covey-Shannon
Anna Ezell
Mattie Piness
Shea Rogers
Skyler Jennings

Where they are in the Pits: [Wright](#)

What Alliance they are part of: [Polar Bears](#)

Representing

South Carolina FLL Championship Tournament



Fun Facts

It's not an FLL meeting without Oreos!



Teamwork

We started as a large team but had several members leave--some when we really needed them. So we pulled together and brainstormed changes that allowed us to continue our research. It made us value each other even more. We have one member who is really shy so we all encourage him. Most of the team runs the robot. We learned that when we work together, the robot works much better. We operate as part of an extended LEGO family at our college all year long by volunteering at educational events and summer camps. We try to practice gracious professionalism when we visit with people in our community. One of our favorite trips was bringing NXT robotics to an afterschool program for underprivileged children. We built our robotic mascot Pup to play with the kids.



Project

When we visited a company that genetically improves trees, we got to stand in a transgenic forest of eucalyptus trees. Every tree was a perfect clone. Awesome! The forestry company donated 400 transformed tree saplings. We gave them away at the Southeastern Wildlife Expo--one of the largest events in the Southeast--and talked with lots of people about our project. We shared a booth with a puma. Big TEETH! We asked if you could make a tree "stinky" to a pine beetle. We talked with a scientist from Canada who is mapping the pine genome. Professor Bohlmann said you could make a pine tree smell like a lemon tree. We thought about the implications to the whole ecosystem of making that kind of change. In the end, we proposed a natural solution and an engineered solution.



Robot Design

We tried to build mechanical devices, like a flat back and pulleys to push off the wall, a touch sensor with bumper, large rubber tires for traction, so we have control over the robot's position no matter the board conditions. We geared our arm for power to lift heavy objects. Our robot is called Jello. We use a touch sensor loop with motors at different speeds to help him jiggle like jello and dance over the ice.

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Team 125

Transformers

Independent Studies at Johnson Ferry

Marietta, GA

Coach: Steve Hargrave



Mentors:

Robot's Name: Bumble-Bee



Team Members

Ian Berryman
Mark Fisher
Emma Hargrave
Abbey Marsh

www.transformersrobotics.org

Where they are in the Pits: Carson

What Alliance they are part of: Vikings

Representing

Georgia State Championship



Fun Facts

During a discussion on triangulation, we had to use the speed of light. Coach Steve quickly told us that it was 2.99×10^8 meters per second. Mark said, "You lost me at 2"! Everyone burst out laughing.

We named the bearded, blue Lego person "concussion Joe" because we tossed him back to base so much his head broke.

Some of our team is home schooled and others attend a program where there is professional instruction two days per week, then the work is completed independently (kind of like college).



Teamwork

- Dynamics – we get along well and talk through our differences.
- Roles – EH=Prog leader, IB=Bld leader, MF=bot & attachment integrity, AM=battery charging and changing, arrow alignment queen.
- Some of us had to give up their mission to save time – no one was too sad, but did it for the TEAM.
- Some of us had to miss practice and others filled in or fixed their missions. We cross-trained for demos.
- Three of us are veterans, the vets really brought Mark into the team and he started offering great ideas early on.
- We helped one old team mate that moved to Indiana with her new team with advice and money.
- We gave out tornado safety brochures to hundreds.



Project

- Learned personally: how to program, triangulation, light sensor calibration, how to build sturdier robots
 - Learned about the community: there are 70 warning sirens in Cobb Co., winter storms cause the most problems, but not deaths; tornado safety tips
 - Shared with Science classes (2); group of local engineers, sales and marketing; ATT wireless R&D; law firm; sci-fair audience; Eastside MS
 - Plan to share with T-Mobile and Verizon wireless; Cobb Co. EMS
- Met with Mr. Moore – Fulton Co. Emergency Management Systems Dir., Mr. Corn – T-Mobile wireless systems engineer, Mr. Myers – CNN severe weather expert, Ms. Rinne – AT&T Sr. VP Network R&D. Talked on phone with Mr. Fischer – Dir of Emergency Management for the city of Mountain Home, AR; residents of Xenia, OH that experienced the 1974 F5 tornado. Talked to residents of Romania, South Africa, Australia and England.



Robot Design

- 5:3 gear ratio & larger wheels for speed
- Eight missions/combined missions; one mission gets 90 points in 6 seconds!
- Third mini-wheel helps with straight lines, but still slides in turns
- Changed turns from NXT-G "slider" point turns to locking one motor and driving with the other for accuracy
- Program sequencer with My blocks = massive memory savings, faster changeovers, can re-run missions
- Use light sensor 6 missions & mechanical locator on 5 missions
- Slide-on attachments for quick change; some missions are no change
- A few jigs for alignment

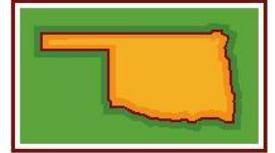
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Team 252

Rainstorm Robotics

Stillwater, OK

Coach: Ron Markum



Mentors: Dr. Hong Bin Lu

Robot's Name: Runaway Ralph



Team Members

Brinley Bliss
Garren Bliss
Albert Cai
Haucheng Gao
Adam Lettkeman
Diana Li
Emily Lu
Tom Lu
Matthew Markum
Shamik Raje

Where they are in the Pits: Carver

What Alliance they are part of: Raiders

Representing

TAME/FLL Tri-State Robotics Championship



Fun Facts

The average age of our team is 9.7 years old. We go to many different schools: public schools, Christian School, and home school. Two members drive 40 miles to attend the meetings. Two of our team members qualified for the World Championship last year. We won the robot design award at our qualifying event. Three members could not make the US Open: Brinley, Garren, and Adam.



Teamwork

Every member on our team is involved in each area. At our qualifying event, every team member designed and programmed their own mission. We each have speaking parts for the research presentation. We are an "after school" team and many of us didn't know the others at the beginning of the season. Even though we are a young team and have a variety of backgrounds we work together as a team.



Project

We all learned that we could speak in front of people and not die. Research is much harder than it sounds. There are very many theories concerning climate change and its causes. We presented our research to professors in the Mechanical Eng. Dept. at OSU and posted it on Youtube.com. We presented our research and gave a demonstration at one of our team members school.



Robot Design

Our robot is interesting because it uses all the sensors (Albert)
We named our robot Runaway Ralph" because it goes crazy after a battery change. (Matthew)
We use a wide wheel spacing to reduce steering error.
We have LOTS of attachments.

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Team 256

got robot?

Homeschool

Elgin, IL

Coach: Mike McKellar



Mentors:

Robot's Name: Terminator



Team Members

Kristen McKellar
Matthew McKellar
Bradley Rosenfeld
Marc Rosenfeld
Jake Urben

Where they are in the Pits: Edison

What Alliance they are part of: Flyers

Representing

Illinois State FIRST LEGO League Championship



Fun Facts

We're a rookie team!!!!
Our team has been featured in the Courier News and the Daily Herald!
Marc can eat his weight in pretzels.
We're all home schooled.
Jake can store pencils in his hair.
Kristen is the only girl on the team.
Jake can bounce a ball off his arm.
Our team mascot is Molly (the dog).



Teamwork

Information unavailable



Project

We did a lot of brainstorming to help decide what climate problem to work on. We decided on icy roads on city streets as our climate related problem. Mr. Charles Blalark of Elgin Streets and Sanitation came to our meeting and answered a lot of questions we had about icy roads and how our city deals with it. Jake and his dad visited a nearby city equipment shed to look at the heavy snow removal equipment. We then researched the internet and newspapers for information on other de-icing products. At a later meeting we had another brainstorm and came up with our solution to icy roads that doesn't use something spread on the roads. Our idea uses embedded coils in the road surface that heats the road and keeps ice from bonding to the surface. The coils are powered from solar cells and kinetic charge plates activated by car traffic. The energy is stored in batteries. Excess power is sold back to the power company.



Robot Design

In our first meetings we worked on construction and learned about all the parts. Then we built different robots and drove them straight for ten feet for ten trials checking how accurate each one was. From that we were able to pick our basic robot chassis and wheels. We experimented with a lot of different attachments. The attachment used for the house was our first big accomplishment. We decided to use a touch sensor for starting our programs and light sensors to detect the lines on the mat so the robot would know when it's close to its mission object.

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Team 262

Microbots

Homeschool

Cary, NC

Coach: Michael Medina



Mentors: Tatiana Miller, Jordan Hill

Robot's Name: Robo Joe



Team Members

Tad Miller
Patrick Spain
Clark Ivers
Rebekah Luther
Zachary Medina
Benjamin Whipker

Where they are in the Pits: Curie

What Alliance they are part of: Big Red

Representing

North Carolina FLL Championship



Fun Facts

Each of our team has a unique story about how they came to the team. We are all home schooled and our academic plate is always full. Some interesting facts, the team designs lego rubber band guns as a side project. Each team member tries to build a more complex mechanism for shooting rubber bands.

Our Captain, Patrick Spain, gave up football to spend more time with the team.

Rebekah, had never played with legos before joining the team.

Tad has been to the Pokeman trading card game world championship three times.

Zach began playing with legos when he was two years old.

Clark has made several stop motion videos using lego men and posted them on YouTube.

Benjamin is best friends with each of the other Microbots and built a 2000 piece Lego at age seven.

The Oldest current Micorbot recently turned thirteen.



Teamwork

We like each other so much that we have continued to practice every week since the first year. We have met every Friday night for two and a half years! We are still pretty young for a first lego team and we have the same team (minus one member who aged out) that we had in our first year.

We met three times a week during the regular season and worked really hard. We believe that First Lego League is a valuable addition to our homeschooling curriculum. We look forward to it every week.



Project

Our project focused on water conservation in our local community (Cary, NC) and Brisbane, Australia. The team made contact with homeschoolers and water specialists in Brisbane and talked to weather and water specialists in the Raleigh area. Using this information, they designed an on-line survey to find out about water conservation practices and technologies around the world. Over 550 people answered the survey, including 305 from Cary and 80 from Brisbane. The team also researched different water savings technologies and created a Lego H2O House (over 3000 Lego pieces) to demonstrate the technologies. We created a website (water4tomorrow.org) to describe water conservation programs in Cary and Brisbane, survey results, and the Lego H2O House. They also presented their survey results to the Town of Cary's Environmental Advisory Board. Since the state competition, the team made 2 movies (a short movie directing people to the website and a LEGO Stop Motion movie about water conservation), built a dew harvester, volunteered at the NC State FLL Rookie Challenge and shared their project in front of an audience of 600 people and at several local events. For example, NC Science Fair, The NC Science Museum astronomy day and at the kick off of a new Lego store to be opened in Raleigh North Carolina. Lastly, their water4tomorrow web-site was recently recognized by Water for Life a division of the United Nations.



Robot Design

Our Robot Joe is a modular block design based on balance, maneuverability, and equal weight distribution. This is our third robot we've used this year as our first robot Robbie, died during practice. This is our third year of First Lego League so we took all of the ideas that we felt were good from the first two years and brought them together.

Our front wheel drive, three-wheel robot with forklift can handle weights greater than itself. This came in handy when we had to pick up the drill and bring it back to base as well and lifting the house. Our wheel wells make the wheels straighter and the turns more accurate. Each team member can program and knows how to use complex elements such as variables.

The team brainstormed these ideas and designed the robot on the white board. Since we took a trip to Atlanta last year as a team we saw many robots achieve 400 points. We know that it can be done. Our robot was not accurate enough our first two years. We believe this robot is better equipped to make a perfect run.

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Team 356

Career Center Critters

Mingo Career and Technical Center

Delbarton, WV

Coach: Rickey Meade



Mentors: Virginia Mounts

Robot's Name: Mingo



Team Members

Jordon Mounts
Crystal Endicott
David Runyon

Where they are in the Pits: Kamen

What Alliance they are part of: RedHawks

Representing

West Virginia FIRST LEGO League Robotics Tournament



Fun Facts

We spend time together in the summer swimming and playing Wii, PS2, or X-Box. We even have gold card memberships so we can play on-line when we can't be together.



Teamwork

Our team members have known each other since kindergarten. Some of all of us have been in the same class, played sports together, and go to church together. We came together as the Critters in the 5th grade and have mentored three other teams who are now FLL teams. During this past year we learned that it is important to be able to be together as much as possible in order to complete the task; all team members are important. Because we are now at different schools and have different schedules, we have all had to sacrifice in order to get to be together to complete work on our missions and research. Many times throughout this past season, we have worked and practiced at 10:00 pm, on Saturdays and Sundays. Because of this, we have learned to practice patience and be a lot more tolerant of each other and others. In the end we completed our programming, completed our research project, had a great time, and grew closer together.



Project

We investigated something that was affecting our local area and was possibly connected to climate changes. We found that the conservation officers in our state and our neighboring state had placed hydrilla into some of the local lakes in hopes of providing fish harbors. The hydrilla has taken over the lakes to the point that it is damaging boat motors, PWC intake area, and generally making the lake unusable for recreation. We have communicated with users of the lakes, conservation officers, boat and PWC repair personnel, and researchers at Clemson University, Marshall University, & West Virginia University. We found that the climate does affect hydrilla growth. During this past winter we had some colder temperatures. Along with the colder winter and the other reduction methods, the hydrilla appears to be less conspicuous as of April 2009. We will be watching it throughout the remainder of the spring and summer.



Robot Design

We tried to make Mingo throw the red ring back to home base. We love the ideas, but our coach said NO WAY !!
!
We have tried to combine missions as much as possible with our design. It is a very simple design with simple attachments for easy assembly.

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Team 437

Cougars

Clintonville Academy

Columbus, OH

Coach: [Jamie Diamond](#)



Mentors: [Jim Beidler](#), [Brad Brannaman](#), [Dan Sing](#)

Robot's Name: [CA White](#)



Team Members

[Mack Beidler](#)
[Ginnie Brannaman](#)
[Joey Diamond](#)
[Jacob Miller](#)
[Philip Sing](#)
[Sarah Zimmerman](#)

Where they are in the Pits: [Edison](#)

What Alliance they are part of: [Flyers](#)

Representing

FLL Ohio State Championship



Fun Facts

Our team foods are donuts and peanut butter pretzels. We have a team cheer. We named Mr. Diamond's garage the "Bot-cave". We wear black fedoras with pink checkered hat-bands. The most fun break activity is the 60' swing in the back yard. On Saturday nights after practice we all play a big game of flashlight tag.



Teamwork

We decided together that we no longer want to give our robots names. This our 5th generation robot. We found that we got too attached to each robot if we named them and did not want to take the older robots apart. This way no one on the team has their feelings hurt. We spend so much time together a lot of us single children feel almost like we have brothers and sisters. That's sometimes good and sometimes bad.



Project

We worked with the Clintonville Academy School Board to create a plan for implementing our solution on the school property. A few weeks ago, when the weather turned nice, we carried out part of our plan and planted 2 trees at the school. We liked using the ZeroFootPrintKids web site to calculate our carbon footprint and to see how choices we make can affect our carbon footprint. We also liked talking with Prof. Ansley, the landscape architect.



Robot Design

We learned to use touch and light sensors to align the robot with walls and lines to improve accuracy and reliability. We figured out the best way for our robot to do it's run and we programmed it that way. We try to always run it exactly the same way. We added a timer to the master program so the robot will choose the right place to stop. Joey has enjoyed emailing with a team in Denmark and sharing design ideas.

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Team 446

Iolani Roboraiders

Iolani School

Honolulu, HI

Coach: Vivian Flores



Mentors: Margo Edwards, Debbie Wakahiro, Matthew Ardo

Robot's Name:



Team Members

Logan Davis
Jason Loui
Kevin Suzuki
Blake Tsuzaki
Courtney Otani
Robert Main
Erin Main
Kyle Flores
Rachael Ridao
Markus Osterlund-Koga

Where they are in the Pits: Resnick

What Alliance they are part of: Spartans

Representing

Hawaii State FLL Championship



Fun Facts

Our team stores all of our FLL supplies and equipment in a school data closet that runs the network for the computers in the building.

Our FLL team kick-started the interest in robotics at our school, and as a result many students have joined FRC, Botball, Vex, FLL, and Jr. FLL.

We also collected about 15,560 cans and bottles at one of our recycling drives to fundraise for our trip to Dayton, Ohio.

There are seven pictures of our 'Iolani FLL team(s) on google image search.

Our motto is the same as the school motto: ONE TEAM.



Teamwork

See Attached



Project

See Attached



Robot Design

Our robot has undergone many changes from the start of the season to the present. When we first started, we used a forklift type 3rd motor arm. Instead of lifting things in an arc, it lifted straight up and down. A few weeks into the season, we realized that our robot became unbalanced when it tried to lift the drilling rig so we quickly modified the robot to an arc lifting system. We use several sensors. On the back of our robot are two touch sensors. These allow us to square up against a wall to increase consistency and accuracy. Under our robot we have a light sensor. It is conveniently located right between the wheels where we feel it is most effective. We also use a wall following device in one of our programs for alignment consistency. This device allows us to travel in a perfectly straight line against the wall.

One of our most interesting attachments is designed to complete many of the missions in the research area. It is a two part attachment. One part attaches to the same place as our wall follower. It contains the yellow ball and the drilling rig. When the robot goes over the research area wall, the yellow ball is lifted up and also lifts the drilling rig in the process. The other part of the attachment contains space for the polar bear, ice buoy, black and white scientist, and the snow mobile.

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Team 486

Gee Whiz Kids

Glastonbury, MA

Coach: Bill Bourn



Mentors: T.J. Miller

Robot's Name: GWK

Team Members

Buck Baskin
Matt Bristol
Kaitavjeet Chowdhary
Kurt Jaisle
Jonathan Joo
Bob Rudolph
Peyton Tiroff

Team photo not available

Where they are in the Pits: Edison

What Alliance they are part of: Bearcats

Representing

Connecticut FIRST LEGO League Championship



Fun Facts

1) We have a total of 17 years of FLL participation:

Buck 4

Bob 3

Matt 3

Peyton 2

Kurt 2

Jon 2

Kait 1

2) We play a total of 7 musical instruments:

Trumpet - Kurt, Bob and Matt

Piano - Kurt, Kait, Matt, and Jon

Baritone - Kait and Buck

Saxophone - Jon

Tuba - Buck

Violin - Jon

Sousaphone - Buck

Guitar - Peyton

Kurt - Trumpet and Piano

Bob - Trumpet

Matt - Trumpet and Piano

Peyton - Guitar

Kait - Baritone and Piano



Project

Our original topic was acid rain and its solutions. After meeting two independent experts on the topic at Yale University and Trinity College, we learned that acid rain is a problem that is in the process of being solved. We decided to include climate change/global warming by showing how the acid rain model in the Clean Air Act can be used to combat climate/change/global warming.



Teamwork

Teamwork is important to our group. We achieve together what we could never do alone. We assigned different roles and work to different people. We make sure to talk to each other about what we are working on. At the beginning of each meeting, we worked together to create an agenda for the meeting. Through a collaborative effort we accomplished much more.



Robot Design

- Used MyBlock.
- Each program displays the version number at the start.
- The computer tracks changes to program versions.
- Flat tread wheels for more traction.
- Double skids.
- We reinforced the robot wheels due to broken axle.
- Axles are braced by triangles.
- Universal alignment.
- Universal tool collection.
- Used light sensor.

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Team 508

CO2 Cleaning Crew

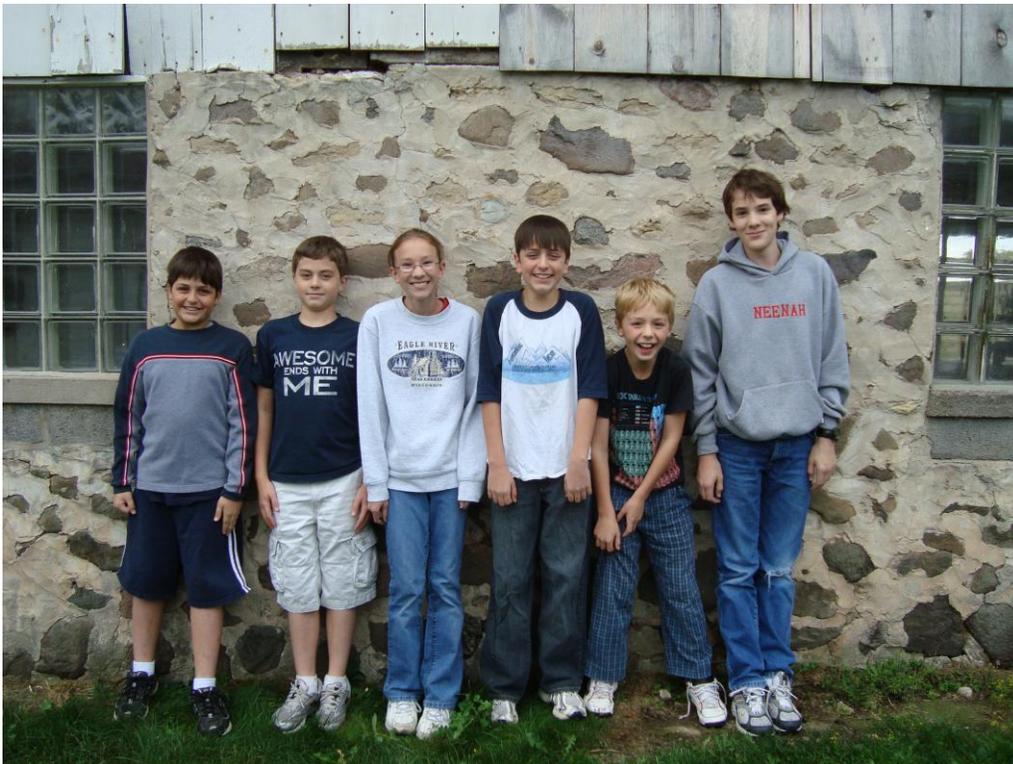
Oshkosh, WI

Coach: Tom Ruegsegger



Mentors:

Robot's Name:



Team Members

Nathan Ruegsegger
Josh Ruegsegger
Aaron Lambrecht
Clara Lambrecht
Matt Karrmann
Charles Johnson

www.flteam508.com

Where they are in the Pits: **Kamen**

What Alliance they are part of: **Bobcats**

Representing

Wisconsin FLL Championship



Fun Facts

We started the year out with 3 team members. We built an actual working fuel cell. You can recognize us by our fuzzy green hats. We have a website www.flteam508.com



Teamwork

We learned how to brainstorm to solve problems and that there are no bad ideas, just ideas that are not used. We learned that winning is fun but not the top goal. Helping others can be fun. Sharing what we learned helps everyone.



Project

Came up with the idea of an Algae based microbial fuel cell. This would help the climate by sequestering CO₂ while not adding. Learned Algae is the fastest growing and that provides a majority of oxygen to the atmosphere. Shared out research with.... Interviewed a climatologist and a research scientist. Learned about our state.



Robot Design

The robot has a very robust design. It has large wheels for speed. It has a touch sensor with a bar on the back for wall alignment. It has a touch sensor above the arm motor for arm calibration. It has an easily removable battery. It has shock absorbing suspension.

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Team 623

Brilliant Bricks

Tri-County Public School

Karlstad, MN

Coach: Brad Thompson



Mentors:

Robot's Name: Frippy Jr. (to the 6th power)



Team Members

Michael Thompson
Josie Nobles
Bennett Amb
Faith Conway
Josh Grochowski
Taylor Rux

Where they are in the Pits: **Flowers**

What Alliance they are part of: **Yellow Jackets**

Representing

North Dakota Championship FLL Tournament



Fun Facts

We have always practiced in the school music room. Our coaches are a band teacher and a math teacher. Our robot had several changes throughout the entire season and it looks completely different since the state tournament. Our team feels like they have learned hundreds of ways to NOT make missions work in order to find the ways that will work. Our team has only one person on it that has done this before and he is in 6th grade. The rest of us are 5th graders. Our coaches tell us that we are the youngest team that they have ever had. To raise money for the long trip here, we collected pledges and played "bowling for LEGO's". We bowled at a bowling alley and collected pledges that people made for how many pins we could knock down. Our cheer is "We are the Brilliant Bricks. We are gonna show you some of our tricks".



Teamwork

Our team started out each wanting to do their own thing in September. The idea of teamwork is one that was hard for us. We didn't like having to give up our ideas if others had better ones. We also tended to get mad at each other during practice and argue. In the past few months, we have finally figured out that for the good of the team, we have to be willing to do things that we normally might not do on our own. We have to speak up when we do our research presentation, even if we are shy. We have to stay focused in robot design, programming, and mission running, even if we tend to like to get "spacey" and we have to choose the idea that makes the team better instead of just taking the idea that the loudest person has. Since we started working together, we have accomplished more and had more fun than we thought we could have. Teamwork requires energy and if we don't have the energy, then our practice doesn't go very well.



Project

We learned that the moose have always had parasites that come from deer, but the increase of heat in our climate has stressed the moose to the point that it dies because of the parasites. We presented our research to the teachers in our school, the school board, and the local Lions club. We contacted Mark Lenarz, wildlife biologist at the MN Dept. of Natural Resources, and he referred us to several articles that both he and others had written concerning the moose population decline and what was causing it. Our community was not aware of how severe the decline of the moose population in this area is. Since our town has an event called "Moosefest" and we are called the "Moose capital of the North", both names are in trouble. Our community is taking no action on the moose decline, other than the DNR has eliminated hunting in NW Minnesota. This problem is local to Minnesota. Other areas are thriving with moose. In Northeast North Dakota, they are seeing more moose than in many years past.



Robot Design

Our robot has changed lots of times since we started the season. The old designs put the wheels in the back and we had trouble with the wheels slipping so the rotation sensor would not be as accurate. Now, the wheels are right under heaviest part of the robot and we use a geardrive to get the power to the wheels. There is no more slippage. The design feature we are most proud of is the fast attach system for putting on different attachments. We call it "quick-tatch". It has sped up our transition times quite a bit. We also worked hard since the state tournament to combine missions and came up with a really neat combination. We built a two piece attachment that lets us deliver the levee blocks and red people while we get the bouy. We use one big program that has missions activated by robot handler with a touch sensor.

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Team 653

Landroids

Livingston Robotics Club

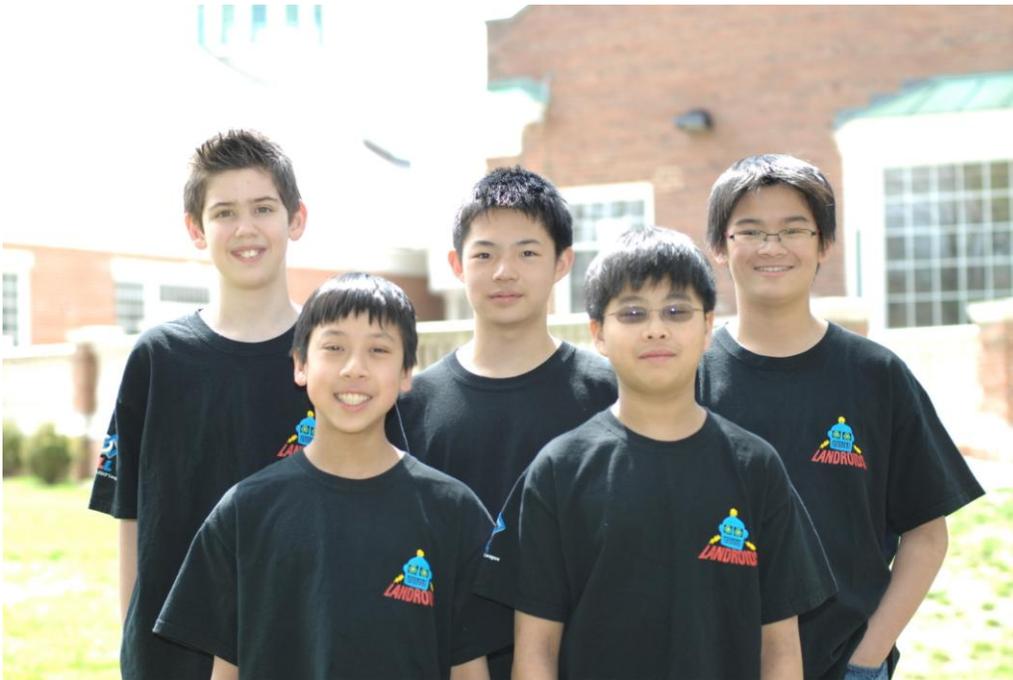
Livingston, NJ

Coach: John Yeh



Mentors: Dr. Roy Messaros, PhD (Army Corps of Engineers), Ryan Kelly (meteorologist)

Robot's Name: SERB (Scott Evans' Revenge Bot). (This robot TRIES to counter Scott Evans' challenge to prevent multiple 400s)



Team Members

Gage Farestad
Stanley Cheung
Jeffrey Dong
Karlin Yeh
Gregory Vuong

www.landroids.org

Where they are in the Pits: Resnick

What Alliance they are part of: Spartans

Representing

New Jersey Championship Tournament



Fun Facts

1. All knew each other since kindergarten. Before forming a team, used to all wear FLL shirts on Fridays to school.
2. Robot matches the team shirt (black!)
3. Went to the Power Puzzle World Festival as a rookie team in 2008.
4. Started up and mentored 4 new FLL teams in 2008, 3 of those teams won State tournament awards!
5. Founded Livingston Robotics Club as a mentoring network, started with 1 team (Landroids) in 2007, expecting 6 FLL teams in town in 2009.
6. Hosted FLL joint kick-off meeting (9/6/09) for 4 rookie FLL teams; and Information Session (4/18/09) for promoting FLL in local communities.
7. Invited the top 10 NJ teams and hosted a FLL exhibition at Liberty Science Center two years in a row, with 3,500 to 4,000 visitors on those days.
8. Compiled a NJ FLL Team directory to start up a FLL network system in NJ.
9. Set up a team website (<http://www.landroids.org/>) as a NJ FLL bulletin board with startup team training resources.



Project

Landroids' project is about beach erosion in NJ, using submersible wave-powered pumps to self-replenish the beaches as a long term solution. Our team did independent research on climate change issues over the summer so we understood the play mat. Once we identified our climate problem, we learned about the NOAA data from a Meteorologist; beach erosion and protection from an Army Corps of Engineers; had a guided tour in the storm by a beach town mayor who had to use Eminent Domain; and saw an Army Corps beach replenishment project in action. We read "Against the Tide" and many website sources to evaluate the economic impacts and stabilization options. We then did lots of pump feasibility studies, model our idea using an Australia desalination project to self replenish the beach using alternative energy. Finally, we presented our findings and cost savings to the communities at the Mall and Liberty Science Center, to the experts, the Army Corps, the pump manufacturer, as well as exchanged ideas with the Canadian and Florida FLL teams.



Teamwork

This is Landroids' second FLL season. We lost 3 members in the last 6 months because of work load and time commitment. Each time, we had to divide up the tasks and do what it takes. It has been a difficult season for robot programming, and we devoted a lot of time in project research. Even though each person has his specialties, there is always one other person who can cover the work, interchanging each other's roles and tasks. Also, this season, we take turn to record our progress and designs in an Enigneering Notebook. We take pride in our notebook, and have tried hard not to spill food and drinks on it.



Robot Design

1. Created a "Home away from home" by plotting an internal "rainbow map" to create additional bases; the robot can look up its current (X, Y) coordinates to calculate the travel distance needed.
2. Retractable dual light sensors for line following and self-alignment. Retract to go over research area.
3. Use magnets for quick apparatus attachment, and pneumatics for quick detachment.
4. Use 7 sensors (2 lights, 3 rotation, 2 touch sensors).
5. Rear touch sensor with shocks to fully align with walls.
6. Deliver carbon balls using a scissor arm cart, activated when robot leaves base.
7. A master menu program to reuse MyBlocks to save memory space.
8. Carbon balls are hit back to the base.
9. Rubber band activated claws to grab the ice rig.
10. One-way ratchet wheel to open window.

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Team 745

NeXT GEN

Southern Middle School - Garrett County Board of Education

Garrett County, MD

Coach: [Arlene Lantz](#)



Mentors: [Phil Malone](#), [Willie Lantz](#), [Ronni DiGioia](#), [Jason Jobe](#), [Elizabeth Huxford](#),
[Aaron Lantz](#)

Robot's Name: [Garrettbot](#)



Team Members

[Daniel Adams](#)
[Zach Frick](#)
[Andrew Hauser](#)
[Rachael Huxford](#)
[Devon Jobe](#)
[Levi Lantz](#)
[Rebecca Lee](#)

Where they are in the Pits: [Resnick](#)

What Alliance they are part of: [Marauders](#)

Representing

Pittsburgh Championship Tournament



Fun Facts

- Won the Champion's Trophy at the Pittsburgh, PA Championship
- This is the 4th Generation of the NeXT GEN team. The past two years the team competed at the World Festival in Atlanta.
- This is the first time these team members will compete at a national competition
- We live in western Maryland in the Appalachian Mountains which has a very short growing season
- The team members have developed a special bond with researcher Dr. Harry Swartz through their research project - they plan to be there helping him build this summer
- Enjoy the creative presentation thanks to the local director of "Our Town Theater" who gave them acting lessons & props
- The team members attend Southern Middle School



Teamwork

- Recognized for 3rd Place Teamwork Award
- NeXT GEN emphasizes teamwork & community involvement
- Clearly defined roles, in pairs, they choose missions, build their attachment, program the mission...as a whole group they design and modify the robot to permit standardized tool attachment
- The experienced members work with the rookie students and keep progress moving forward
- NeXT GEN divides and conquers the research project, had fun with acting lessons, ready to help build the greenhouse, lots of life skill experience



Project

- Recognized for 1st Place Research Award
- How can we extend the short growing season in Garrett County?
- Design an "Energy Harvesting Greenhouse" - Uses pool solar panels, ICFs, earth sheltering, earth tubes and live web data display.
- Experts: Dr. Harry Swartz (strawberry breeder), Willie Lantz (Agricultural Agent), Mr. T (Environmental Teacher), Mr. Hart (Planetarium Teacher), Phil Malone (energy web logger), Ken Harris (FAFCO pool panels), Jane Avery (Theater director)
- Team co-wrote and was awarded a \$7,000 SARE Grant to help build this greenhouse. Construction is underway!
- Shared research with Strawberry Growers Association, Maryland Teacher's of the Year, Board of Education, general public at our FIRST Open House, Swan Meadow School, local Lion's Club, Women's Civic Club
- Will help with the construction, monitor the heat and energy usage, report their findings in the SARE report for others to use in the future



Robot Design

- Won 1st Place Robot Performance Trophy with score of 340
- Recognized for 2nd Place Technical Design - Cool & Creative!
- In the top 10 for Programming
- Robot is stable and robust, created & modified by whole team to meet shared attachment requirements
- Quick click modular attachments on & off
- Multiple missions in each run
- Check out the cool "Raise the House" non-motorized multi-function attachment that does 7 missions in one
- Students continue to design, test, & refine
- Travels efficiently, adjusts speed, turns accurately, performs consistently with use of light sensors
- Kid friendly programming logic, uses subroutines, and on-screen icons for quick program selection

830

Team 830

White Tigers

Kansas City, MO

Coach: [Roberta McCormack](#)



Mentors:

Robot's Name:

Team Members

Team photo not available

Where they are in the Pits: [Curie](#)

What Alliance they are part of: [Pioneers](#)

Representing

Kansas City (MO) FLL Tournament



Fun Facts

Information unavailable



Teamwork

Information unavailable



Project

Information unavailable



Robot Design

Information unavailable

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Team 1186

ID10 Team

Tanana Middle School

Fairbanks, AK

Coach: Peter Kristeller



Mentors: Robert Parsons

Robot's Name: Zoolander



Team Members

Jaguar Kristeller
Heather Parsons
Keighen Lindholm
Zach Abrahamson
Connor Gilman

Where they are in the Pits: Carson

What Alliance they are part of: Vikings

Representing

Alaska Championship FLL Tournament: Tanana Valley Robot Rally



Fun Facts

Many of the team members are computer gamers. Many times the conversation strayed to gaming tips and techniques. Since we met many times with only a few team members, some members had trouble remembering the names of the other team members.



Teamwork

Teamwork was really tricky this year as many of the team members have a lot of activities. Finding time for all of us to meet was difficult. We often met with only a few of the team members present. This helped team members stay focused on the task at hand but meant the meetings covered some material many times.



Project

We learned why the pollution hangs around in our town and what the term INVERSION means with our climate. We were surprised to hear that the climate issues were so similar to Washington state even though the temperature was not as extreme.



Robot Design

Robot propulsion and steering utilizes one motor and a differential. This allows for other motors to be used for task arms.

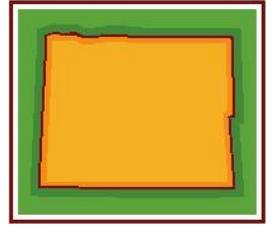
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Team 1271

SAM'S Rappers

Casper, WY

Coach: Terry Cometto



Mentors:

Robot's Name:

Team Members

Team photo not available

Where they are in the Pits: [Kamen](#)

What Alliance they are part of: [RedHawks](#)

Representing

Wyoming FLL Championship Tournament



Fun Facts

Information unavailable



Teamwork

Information unavailable



Project

Information unavailable



Robot Design

Information unavailable

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Team 1302

Climate Cops

Peoria, AZ

Coach: Eric Scheidemandel



Mentors:

Robot's Name: Fatal Error



Team Members

Coleman Ellis
Jacob Sindorf
Adam Gray
Kenji Onaka
Jeryn Lamberto
Dobry Kolacz
Matthew Lerner
Joseph Scheidemandel

Where they are in the Pits: Woods

What Alliance they are part of: Bulldogs

Representing

Arizona FIRST LEGO League Championship



Fun Facts

Our team name is The Climate Cops. Our motto is: We are the Climate Cops, protecting the climate and serving our community! During the competition we will pass out sheriff's badges and whistles and make everyone an honorary Climate Cop. We will also decorate our booth with spinning red and blue lights! We also have a car made out of PVC piping and foam board. It will also have spinning red and blue lights on it. We will have blue shirts and cop hats to match our theme.



Teamwork

We learned much about teamwork this year. We all came up with ideas and shared them as a team. After that, everyone helped revise and improve them. All of us split into groups and worked on specific parts of the overall project. After working in our groups, we would help other groups. We all worked together planning out and creating our cop car. One of the important aspects we learned is it is not about winning; it is about having fun and learning a lot.



Project

We learned about the heat island effect, drought, and what the climate is in our area and around the world. We found that Egypt, Australia and Nevada have a climate similar to ours. Our climate is a dry heat with little rain and it is very HOT. Our solutions to the problems of our climate are: Increase the amount of vegetation in our area, replace dark colored roofs and roads with lighter colors, and build a solar desalination plant with our neighbor, Mexico. We shared our ideas by talking to our community leaders in the City of Peoria and Arizona State Climatologist.



Robot Design

Our team loved working on the robot. We used the idea of making our robot a box. This made it easy to put on and take off a lot of attachments. It also made it very durable and hard to break. Everyone contributed with some part of the robot. Our rotation sensors are very unique because of the fact that they are on free wheels and are being held down by springs (shocks). This makes them very reliable and hard to slip. One of our cool attachments is the robotic arm ice core collector that uses many prongs to improve its accuracy on collecting the ice core. We showed this attachment to many teams at the ASU RoboTech scrimmage.

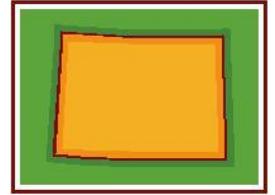
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Team 1360

Hawaiian Caribou

Fort Collins, CO

Coach: [Mary Hunter-Laszlo](#)



Mentors:

Robot's Name:

Team Members

Team photo not available

Where they are in the Pits: [Edison](#)

What Alliance they are part of: [Bearcats](#)

Representing

University of Colorado FIRST LEGO League Championship



Fun Facts

Information unavailable



Teamwork

Information unavailable



Project

Information unavailable



Robot Design

Information unavailable

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Team 1384

Climate Countdown

Long Beach, MS

Coach: [Trena Attipoe](#)



Mentors:

Robot's Name:

Team Members

Team photo not available

Where they are in the Pits: [Edison](#)

What Alliance they are part of: [Bearcats](#)

Representing

The Mississippi FLL Championship



Fun Facts

Information unavailable



Teamwork

Information unavailable



Project

Information unavailable



Robot Design

Information unavailable

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Team 1505

BatMOEbiles

Immaculate Conception School

Elkton, MD

Coach: Mary Bartsch



Mentors:

Robot's Name: ROSIE the ROBOT

Team Members

Katje Barbor
Claire Griffith
Brandon Willis
Robert Williamson
Chris Cummings
Wil Dacey
Spencer Kerrigan
Victoria Czerwinski
Matt Hill

Team photo not available

Where they are in the Pits: Carver

What Alliance they are part of: Penguins

Representing

First State FIRST LEGO League Championship Tournament



Fun Facts

BatMOEBiles- The MOE in our name stands for MIRACLES of ENGINEERING, one of our sponsors. Our ROBOTS name is ROSIE, like the TV cartoon Jetsons. We constantly sing and made up a team song. We have a super hero logo as our team logo (Batman Signal) We visited the airport, control tower, a simulator, tried on a pilots helmet, visited the Marine center down the beach. We had a great time fund raising and the school is really excited for us. We designed our Tshirts. WE have multiple plans for the future: Nurse, Lawyer, Veterinarian, engineer, entrepreneur, pro athlete.



Teamwork

Our Team brings many different opinions and ideas to the table when working together. We have good communication skills and get along well. We made a survey to learn the opinions of peers and teachers, parents and community. Then we decided to think outside the box for our solution. Different team members specialized in different areas such as programming, building, presentation, planning, public speaking, trouble shooting, working under pressure. We are all different ages from 7th and 8th grade but we cooperate well. We know when to be serious and when to have fun. We combined ideas to fund-raise. We raised the money in One big and two small quick fundraisers. We focus on one idea, then expand it and improved our robot and presentation. We respect each other and like to sing and laugh along with learning.



Project

We started our research out with a survey on the "Effects Climate Changes had on Peoples Lives" with the school, parents and community. We gathered our results and from the survey found that travel was most affected. Upon research, we compared Philadelphia, Pa & Frankfurt, Germany because they have similar climates and two big airports. Next we went to New Castle County Airport, visited the control tower, spoke to Air traffic Controllers, saw planes land, looked at radars and heard pilot/controller transmissions. Pilot Paul Young came and spoke to us at our school. We researched MIT and found a similar radar to cur's. Major Bray gave us the opportunity to go in a simulator at the Dover Air Force Museum. At the University of Delaware we spoke to Prof. Ciotti about his research on the effects of climate changes on the ocean and atmosphere. We then created our radar and shared this information with the school. Pilot Paul Young, parents and community. (VCR of the SWBM)



Robot Design

There are three motors. Two are on the wheel's and one is on the arm. Our Robot has a 3 point stand, There are two seperate wheels that allow the robot to move faster. The large drive wheels allow the robot to move faster. The rear wheel is a small dragger. The arm has tools that are interchangeable. The robots rear armor plate is used as a pusher. WE have a compact and sturdy design. We have 17 missions that work successfully for a total of 340 points. Our missions are organized in four seperate programs that can complete multiple missions. The robot mission block instruct direction, power, and duration in the motor. Pause blocks seperate missions. Pauses are restarted with the orange button by the team. Our internal motor sensors count the degrees of rotation. The light sensor in a loop rotation detects light. Our most unique design is our loop. Its flexible, and multifunctional, It is used in many missions. Our basket is also good. It earns many points in a short period of time.

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Team 1726

ZBOTS

Fort Wayne, IN

Coach: [Kitty Bellis](#)



Mentors: [Ben Griffith](#)

Robot's Name: "Ichi ban" (Japanese for Number 1)



Team Members

Chris Bellis , David Bell
Claire Griffith, Esther Bell
Rees Richards, Sam
Brinneman
Bradley Bellis

Where they are in the Pits: [Resnick](#)

What Alliance they are part of: [Spartans](#)

Representing

Indiana FLL Championship Tournament



Fun Facts

First of all we have three sets of siblings on our team. We also have parents who all work for the same large company in Fort Wayne. And finally, we get to practice next to a pool all season as long as the resident cat is not sleeping on the robot table.



Teamwork

FLL is all about fun and getting to know all of the people who we have been able to share several seasons with. This includes a showing at the local college honoring students involved with science, math and technology, a special morning at a local middle school, and showing off the robot during the Fort Wayne Three Rivers' Festival in July last year. We hand out our team buttons and let people know just how to get involved with the First organization. We also talk to others about this year's and last year's projects. We let people know that First Lego League is a lot of fun, but also comes with many hours of problem solving as a team.



Project

We presented our project to the Fort Wayne Flood Task Committee and also the Maumee River Basin Commission. We contacted the Indiana State Climate Office and found loads of data tracking the river crests of the St. Mary's River. We discovered that plans for helping flooding in Fort Wayne and surrounding areas are very much needed. We also developed a plan of our own to help control flooding in our community. (Documentation of data will be given during presentation, to be kept by the judges.)



Robot Design

This year's table was a real challenge. We have been through many revisions including between our state competition and this one. We have added several "wall bumps" to help navigate the table and have needed to program extra to get rid of gear slop. We have also added additional programming to control the motors more precisely. We have also used both a RCX and a NXT push sensors for the front bumper and the arm movements. Our most unique feature we have used from year to year is our menu system. It allows the robot to move from program to program without having to search the brick. One press of a button allows us to run each program. (Programming and design manual of our robot will be given to the judges at the time of presentation.)

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Team 1829

Mindstorm Masters

Odle Middle School

Bellevue, WA

Coach: David Zook



Mentors: Keith Drevecky

Robot's Name: da 'bot

Team Members

Tyler Okamoto
Jeremy Chen
Dustin Lee
Skylar Lee
Kevin Tam
Zane Zook
Luke Pflieger

Team photo not available

Where they are in the Pits: Curie

What Alliance they are part of: Pioneers

Representing

Washington State FLL/Jr.FLL Championship



Fun Facts

We have a mission named Lance Armstrong and another named The Ginsu!

We have a Panda on our team, another's name has been made into an adjective "Tyler-fied" meaning exceptional. One kid eats Tabasco on EVERYTHING, another is a Ballet Boy and another was asked at State if his ears were FAKE!?



Teamwork

We've learned that Teamwork is NOT necessarily something that comes easily. We've had to actively work at it. We've all had to sacrifice... giving up some of the childish behaviors that irritate others. We've been known to bicker, argue and fight but, we work it out and we are all ready to help any other member.

In the end, teamwork isn't about never having disagreements, it is about not letting them get out of hand and NEVER, NEVER, EVER, letting down your team...

producing when they are depending on you!

We've also learned you need to be confident around dogs!



Project

We saved our school almost \$4,000 in waste disposal costs this year and connected with a nearby elementary school, helping them create a Green Team also.

We've been asked by our School District to create a "fun, educational" book about our successes that will be used to roll-out green teams to the other schools in the district next year!

We did experiments with four types of Bioremediation.

We learned that Mycellium can digest almost anything, including Dioxins, Crude Oil, Gas.



Robot Design

We are a DESIGN-oriented team versus being a programming-oriented team. Meaning our natural tendency is to solve problems with engineering rather than with fancy programming. But, we are capable of dependable, fancy programming when necessary.

Our robot is stable, quick and easy to attach tools to.

One of our "tools" is called the GINSU because "it slices, it dices, it does everything around the house!"

We've reduced the number of programs on our 'bot from an initial 12 to 5.

We believe that we can score a perfect score at Nationals.

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Team 1861

Saber Robotics

St. Gabriel's Catholic School

Austin, TX

Coach: Mike Scallon



Mentors:

Robot's Name: •X•



Team Members

Erik Gabrielsen
Nicolas Lavigne
Joseph Martinez
Brody Roush
John Ruggio
Drake Scallon
Reed Wells

Where they are in the Pits: [Flowers](#)

What Alliance they are part of: [Golden Flashes](#)

Representing

Central Texas FLL Championship Tournament



Fun Facts

We all play competitive sports and love a good challenge. Everyone on the team can solve a Rubik's Cube®. All of us root for The University of Texas except for one of our lost teammates...he still roots for OU.



Teamwork

We have 7 members that all possess unique talents and skills that make up a collective effort towards this year's challenges. Some of us focus on programming, building, strategizing, applying practical solutions, using out of the box thinking, script writing, humor, and organization. Together our goal is to pull all of our resources together to make a unified effort at all four elements of this year's challenge; the game, research, technical presentation, and teamwork. We have created special handshakes for each member of the team and plan to show them off after each mission run on the game.



Project

We focused on the climate issue of drought. Here in central Texas, the Highland Lakes become very low when we are experiencing below 32 inches of annual rainfall. In east Texas the annual rainfall totals can easily exceed 50 inches and they experience flooding often. Our solution was not aimed at eliminating the droughts that occur, but alleviating the stress on our most reliable water source, the Highland Lakes. We decided it would be a good idea to capture the rainfall from the very wet east, and pipe it to the dry central region. Large structures like the Astrodome and Toyota Center in Houston would be capable of yielding over 19 million gallons per year on average. The trick would be to get this water and more to the Highland Lakes efficiently and affordably. Instead of the traditional and expensive means of pumping and storing water, or the inefficient means of aqueducts, we decided to modify the approach. Our solution relies on a network of underground "stair-stepped" pipes with a unique "lifting" mechanism installed every 20th mile to bring the water up 600 feet to central Texas and unload it in the Highland Lakes. This will be done with an apparatus similar to Archimedes' screw.



Robot Design

Our robot uses a two light sensors and two touch sensors in addition to the rotation sensors within the two drive train motors(B & C) and arm motor(A). In an attempt to save precious seconds we use all three NXT buttons to start our programs, not just the orange button. There are only two programs on the NXT and each one contains three sub programs written as My Blocks which are assigned to run by touching one of the corresponding three NXT buttons. Each my block is a program that was written to execute multiple tasks on the board. The first program is titled First Three Programs and it contains the 1st three my blocks, and the second program is titled Last Three Programs and it contains the last three my blocks. This allows us to run all six missions with as little button pushing and program surfing as necessary. We use snap-on snap-off attachments as well.

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Team 1962

Wagga Wagga Warriors

Linden Elementary School

Oak Ridge, TN

Coach: Lisa Buckner



Mentors: Dr. Mark Buckner, Research Scientist, David Dunning, Engineer

Robot's Name: Wagga 2

Team Members

Luke Buckner
Zach Kendall
Eli Clayton
Kevin Mihealsick
Lucas Dunning
Brandon Villasana
Andreas Franco
Jacob Vittone
Jonas Grayson
Michael Zheludev



Where they are in the Pits: Curie

What Alliance they are part of: Big Red

Representing

Tennessee FLL Championship Tournament



Fun Facts

- We can't believe that we thought we would find a way to make a tank robot maneuver around things and turn quickly. Especially since, the army hasn't figured this out in the almost 100 years tank's have been around.
- We earned pickle pins, to remind us "When you're in a pickle, remember TEAMWORK just might help you out!"
- Our robot has been named Wagga 2 (Wagga 1 retired after State), but we call the orange button on the Mindstorm brick BOB - (which stands for BIG ORANGE BUTTON). You could sometimes hear team members shouting hit BOB in our meetings, but we promise no one was being abused!
- Our state representative, Jim Hackworth, hand-delivered to our school a copy of House Joint Resolution No. 135 which honored and congratulated our team on our many accomplishments. It was read and adopted on March 16, 2009. We think it's so cool that we forever will be in the Tennessee Senate meeting minutes!
- We have received a lot of support from our community! The following businesses are sponsoring our trip to the U.S. Open: USEC, Inc., UT Battelle, Tetra-Tech, Inc., SAIC, Energy Solutions, Inc., System



Project

We learned that Oak Ridge, Tennessee lies in the Humid Subtropical Climate zone. Our climate has warm summer months and mild winters. Our climate experiences a high amount of humidity. We found that some areas of Australia fall in the Humid Sub Tropical Climate zone, too. We located Wagga Wagga, a city in Australia that shares the same climate. We decided to research this city because we liked the name and because we thought our cities had a lot in common. We identified five problems that are or have been tied to one or both cities and their climate. Each of our cities has identified some solutions to these problems. By sharing these solutions we can learn from one another.

(1) Asthma and allergy related illnesses - The people of Wagga Wagga have done two things to help with the asthma problem: First they established The Wagga Wagga Community Network over 30 years ago that helps educate the public and government about asthma and second the city provides an asthma warning service, which allows citizens to sign up to receive alerts by email or phone when risks are elevated.

(2) Heat related illness due to extreme heat temperatures - In our research we also found that more weather deaths come from heat related illness. In 2007, Tennessee had 11 deaths due to heat stress. These were preventable deaths. People need to be educated to know what signs to look for and how to prevent heat stress from happening. We came up with one way to educate the public concerning heat stress. We made paper fans and printed information about what to do in the event of really hot weather. These fans could be printed and distributed in summer months to those most at risk from suffering heat stress: the elderly, homeless, children, and poor. We'd like to take these to



Teamwork

At our first meeting our coaches told us how important working together was going to be to enable us to finish the research and robot missions. They reminded us often of the FLL values at our meetings, especially when we were not supporting one another or spending too much time off task. In August, we began meeting and built the missions. After finishing the missions we began problem solving and trying to agree on a robot design. The team really liked the idea of a robot that moved with treads like a tank. We worked for weeks trying to make that design work to accomplish our missions, but were unsuccessful. Finally after 8 weeks, the team decided they had to come up with a new design. We researched last year's 1st place team winner and liked some of their ideas and used them. While strategy planning we decided we needed an elevator and a claw as our main attachments so team members were assigned to make them. As additional attachments for other missions became necessary, one or two team members were assigned to build them. At the beginning of the season, as a group, we problem solved strategies for completing each of the missions and ideas about



Robot Design

This year we changed our robot design a lot. We started the season wanting a tank design. We kept modifying our tank robot trying to make it turn more consistently. After 8 weeks of making changes to our tank and trying to get it to work, we came to the conclusion that treads don't turn well and this years missions required a robot that could maneuver between, around, and over objects. We researched last years FLL champion robot design to get pointers and ideas. Next we tried wheels. Our first wheeled robot design used much smaller wheels and didn't cover distance as quickly as we needed. So we changed the wheels to a larger size. The next big change we made was to remove the tires from the skids on the front of our robot. We did this because the skids on the front of the robot with tires caused slippage in turns making our programs inconsistent. We also learned from the Lego Guards team that it was important to clean the wheels between missions for optimum performance. After state competition we decided to redesign the wheels because we noticed that we required better traction and torque to increase the speed and accuracy. We ordered Lego motorcycle racer wheels and tried these too failed in the area of traction and slippage. So we instead decided to use the largest wheels that had come in the Lego Mindstorm packaging. We also decided to move our skids to the back of the robot and the wheels to the front to make turning quicker and easier.

Our major attachments include both an elevator and a claw. We use the elevator to construct levees, test the levees, bury the CO₂, perform the house missions, get the ice buoy and ice core sample, and in delivery of objects to the city, research, and green grid areas. We use our claw to get the CO₂, and the drilling rig. We

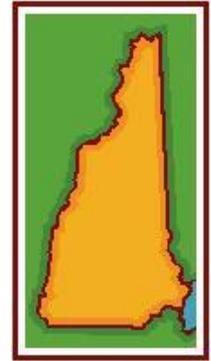
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Team 2004

The Inventioneers

Londonderry, NH

Coach: Lisa Evarts



Mentors:

Robot's Name: Herbie



Team Members

Emily Balcom
Kate Balcom
Paige Balcom
Jaiden Evarts
Tristan "TJ" Evarts
Sarah Heimlich

www.theinventioneers.com

Where they are in the Pits: Carson

What Alliance they are part of: Vikings

Representing

New Hampshire FLL Championship Tournament



Fun Facts

- We always bring light into the dark because of our shirts!!
 - We love our pajama meetings.
 - We love having a meeting on a team member's birthday (cake or ice cream anyone?).
 - We "Inventioneered" the "New Hampshire" Dance to the song Hampster Dance. Come by our pit area and we'll teach you!
 - We had a blast at our team sleepover where each of us decorated and had everyone else sign a pillow case to remember our great season!!!
 - At our harvest party we became experts at pumpkin seed spitting, egg tossing, wheelbarrow racing, three-legged racing, apple bobbing, donut-eating off a string, and eating!
 - We have a team dance called the Wangdoodle.
 - We will often congratulate people with a resounding "WHOO!" (pronounced VERY QUICKLY!!!)
 - We make lots of corny jokes! (although we aren't vegetarians...)
- For more fun facts about our team please look at our attached sheet. thank you!



Project

- Our problem is: We cannot participate in non-food source (algae) biofuel production because of our short, 124 day, growing season.
 - We found that because corn is being used as a biofuel source 200 MILLION people are starving, and that you can either fill up your car one time with corn biofuel or feed a person for an entire year! (Think about that the next time you fill up!)
 - We invented a patent-pending algae to biofuel system that uses waste water, carbon dioxide and waste heat to grow the algae in vertical containers to maximize the algae's yield per square foot.
 - We met with Gary Hirshberg, CE-Yo of Stonyfield Farm, and he liked our ideas so much he asked us to build our pilot greenhouse on his company's property.
 - We met with Dr. Vasudevan, Dr. Farag, and Dr. Gardner, all of whom are professors at the University of New Hampshire. We have created an ongoing lab program in Dr. Gardner's lab, where our team is doing algae research.
 - We have shared our project with over 1,000 people this year. At a regional energy expo alone we talked to over 250 people!
 - We created the Get Up and Go Green Guide to tell people about our project. Inside our guide there are top ten lists of ways to be green, NH's climate data, and climate challenges as well as information about the fastest growing biofuel source - algae!
- For more of our research information please look at our attached sheet, thank you!



Teamwork

- FLL Core Values are the "core" of our team! We were thrilled to be picked as one of the FLL Core Values teams for this year's FLL World Festival! That recognition of our accomplishments by NH's operational partner means so much to us.
- We have told at least 1,500 people about FIRST, our project and our team this FLL season alone!! FLL is the best and we want to get other kids involved so we took action:
 - We "Inventioneered" and held a 'Forming an FLL Team 101 Workshop' where we started 2 new FLL teams!
 - We mentored 4 rookie teams. Hooray that 3 of them made it to our State Tournament! Check out our top ten list to help rookies!!
 - We have gone many places (science museums, summer camp expos, parent-teacher expos, trolley tours, etc.) to talk to kids and adults all about FIRST. We take our portable FLL table (which we designed ourselves - it only weighs 10 pounds!!) and show a robot in action. The kids love to push the start button and see Herbie go!



Robot Design

- Our team rocks! We strive for technical excellence in both hardware and software.
 - Our light sensor design rocks! For hardware we designed a "skirt" that restricts ambient light so our robot can even run in the dark! Our extensive testing dictated how we "Inventioneered" our design.
 - Our software rocks! Our robot automatically calibrates the light sensor thresholds while it accomplishes the missions - no grabbing light readings between matches for us!
 - Our ultrasonic sensor utilization rocks! It's like our bloodhound on the table seeking out walls and balls to accomplish the missions. Our extensive tests helped us determine how to use this sensor to the max.
 - Our robot design rocks! We "Inventioneered" a layered strategy that helps us maximize all our "real estate" by using all four sides of the 'bot. We can't wait to show you in our judging session!
 - Our Smart Buttons rock! We learn real engineering concepts and put them to use! Our main program is a finite state machine and saves us over ten seconds on the table in just changing from one program to the next!
 - Our use of Robolab rocks! We love Robolab because it allows us to fully customize our programs - no preprogrammed big blocks for us! Please look at our code notebook to see our advanced icons and unique use of Robolab's features!
- For more of our robot design information please look at our attached sheet, thank you!

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Team 2173

Flaming Chickens

Highland Tech

Anchorage, AK

Coach: Jason Arthur



Mentors: Denis Dewane

Robot's Name: Airhead (he is gassy with pneumatics)



Team Members

Sean Herrmann
Patrick Dewane
Aidan O'Donnell
Darren Sampson

Where they are in the Pits: Edison

What Alliance they are part of: Flyers

Representing

Alaska Championship FLL Tournament: Robot Rendezvous



Fun Facts

We ride polar bears to school and live in igloos. Our team motto is "Robot worked, something's wrong." We completely redesigned our robot beginning in March.



Teamwork

We learned how distributing work evenly makes everything easier and faster. Another quality we improved on was taking input from others; it's nice to have a new opinion.



Project

We found out that the climate is causing polar ice melt which is affecting Alaska. We shared our research with a local elementary, our school, University of Alaska Anchorage, UAA Board of Engineers, Walter Parker, and Mead Treadwell.



Robot Design

We use pneumatics and clutches on our robot. All of our attachments use a power take off (PTO) to be driven. Light sensors and touch sensors provide better accuracy while driving.

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Team 2179

Retro Dogs

Police Officer Rocco Laurie Intermediate School 72

Staten Island, NY

Coach: [Randi Huss](#)



Mentors: [Ariel & Alexa Napolitano](#), [Suzanne Frank](#)

Robot's Name: [Retrobot](#)

Team Members

Dillon Chan Timothy Cox
Kevin Sheridan
Christopher Jeong
Heather Platt
Monica Mikhail Sarah
Zainlabdin



Where they are in the Pits: [Carson](#)

What Alliance they are part of: [Falcons](#)

Representing

New York City FLL Championship Tournament



Fun Facts

We were the grand prize winners of the Golden Apple Award for our electronics recycling program. We continued this theme by creating our team mascot and hypothetical solution to our research project with MALL-E. Our motto is MALL-E is watching you - to encourage recycling and composting. Our school is located less than a mile away from the Fresh Kills Landfill - the largest landfill in the world!
We almost forgot to take our worms/indoor composting bin home for the Spring Break!



Project

We created our hypothetical solution to the climate problem of methane gas in the atmosphere; MALL-E (methane abstractor load lifter Earth class). We created MALL-E out of recycled materials. We also completed a composting 101 course and MALL-E helped us reach out and educate our local communities as to the ease and benefits of composting. She celebrated both Chinese New Year with the Staten Island Chinese School, and Israeli Earth Day with the Staten Island Jewish Community Center. MALL-E is also going to celebrate a composting and tree planting expo at Snug Harbor, Cultural Center (home of the Staten Island composting project).
The team gained a considerable amount of knowledge from Michael Reiser, from the Recycling Branch of the NYC Mayor's Office. The team learned a lot about the Fresh Kills Landfill, as well as to the benefits, procedures, and advantages of composting. We are putting this knowledge into use by starting our own composter, which we hope to expand in the Spring and Summer.



Teamwork

It's been a complicated process and our team has evolved since our initial competition. We have overcome and adapted to unexpected events this season. Unfortunately, one of our coaches could not participate due to a serious family illness. Despite this, Coach Colasanto have proved to be the epitome of a role model of dedication, determination, and gracious professionalism to the team. His influence was essential in coping with the sudden loss of our varsity robot handlers, after our state competition. Their sudden decision almost caused us to cancel our participation in this event. However, the team showed their dedication and respect, not only for Coach Colasanto, and our school but also a sense of commitment to the competition; we had already accepted the honor of participating in this event. Instead of letting this destroy the teams moral, they brainstormed together to come up with a creative solution to this predicament. Three eighth graders and an apprehensive first year sixth grader stepped up to the plate and vigorously began an intensive training/practice schedule. If this wasn't enough, one of our key research team



Robot Design

We are still using the RCX - hence the name Retrobot. To make it competitive against the NXT we incorporated a rotation sensor, a touch sensor, and have designed our robot with gears for four wheel drive. With this set-up we believe our robot actually has an advantage over the NXT as it is lighter, and therefore able to move faster. Part of our game strategy was to complete as many missions on the board as possible - compared to past years boards which focused more points on fewer missions unlike this years board so, robot speed is essential in completing the greater number of missions in time.
We also designed our robot with a moveable arm that can be fitted with several different easily removable attachments. The coolest thing about our robot is the fact that we were the only team in NY State that was still using the RCX at our state competition and we managed to score the highest score for robot performance (270 points).

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Team 2221

Robo Pros

Centreville, VA

Coach: Agrawal Roli



Mentors:

Robot's Name:

Team Members

Team photo not available

Where they are in the Pits: [Kettering](#)

What Alliance they are part of: [Tigers](#)

Representing

Virginia/DC Championship Tournament



Fun Facts

Information unavailable



Teamwork

Information unavailable



Project

Information unavailable



Robot Design

Information unavailable

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Team 2662

WarriorBots

Valley Christian Schools

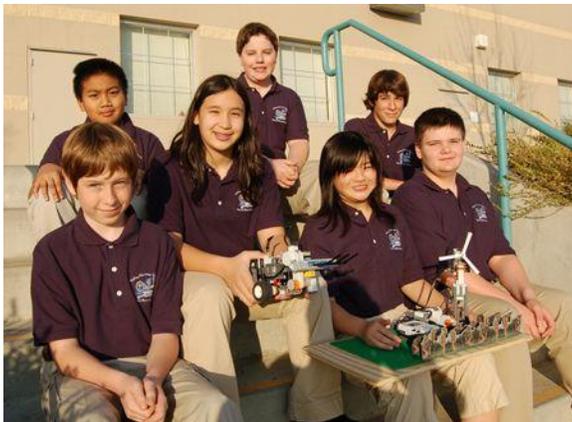
San Jose, CA

Coach: Annette Lane



Mentors:

Robot's Name: [The Subway](#)



Team Members

Chase Batinich-Garcia
Marcus Byrd
Sarah Chue
Paulo De Jose
Megan Lippi
Aaron Roth
Derek Snyder

Where they are in the Pits: [Carson](#)

What Alliance they are part of: [Falcons](#)

Representing

Northern California FLL Championship



Fun Facts

Our motto "We meet, we eat, we compete, we beat and we repeat". The WarriorBots name comes from our school mascot and nickname The Warriors. "The Lord is a warrior the Lord is His Name" Exodus 15:3



Project

There are several important things that can be mentioned about our Smarter, Greener Wind Machine project. The design we generated could impact many of the agricultural areas of the world. This invention not only has great financial advantages to farmers but it has great impact on alternative energy. Our team filed for a Provisional Patent (Patent Pending #61/122,225) for a dual purpose wind machine/wind turbine. At the moment, we are adding more details and claims to the patent in preparation for an Utility Patent application by December 2009.

We met with several climate and agricultural experts, government agencies and wind machines and wind turbine manufactures as listed: Dr. Ann Chin - Professor of Geography at Texas A&M, Ben Scorsur - Cloe Le Chance Winery in California, Chris Tulloch from the Santa Clara Valley Water District, and Dave Hamerning - Cascade Wind Machine Service. We had the opportunity to share agricultural climate issues and our idea with a community which had a similar climate and agriculture in Wither Hills, Marlborough, New Zealand. We did a live webcast with Mr. Geoff Matthews and Dwayne Ternett. One of the main designers of the invention used Google Sketchup as the CAD drafting tool. As a result, Google Corp. contacted us to further train us on Google Sketchup and post the design on the Google Sketchup site. The company is interested in working with us with some of the tools that we can use to share our ideas in the future.



Teamwork

The WarriorBots have been together for the last five years. However, there are four rookie members in our team of seven. Through time, we have become like a little family. Everyone in the team has different responsibilities based individual strengths. Derek is the project manager. He makes sure that we meet deadlines and we stay on task. Marcus, our senior and graduating team member, is the Head Builder. Aaron is the Research Project Manager. He directed the research and the presentation. Chase is a builder. Paulo is in charge of the parts, the field and the rules. Sarah and Megan are the programmers. Every meeting time we discussed what each person was working on in detail. This allowed for each one of us to cover for each other when necessary or help each other when needed.

In the middle of the season, we found out that one of the team members was not going to participate on the tournament because of a learning disability (Aspergers). Although we did not know exactly what was wrong, we asked the parents to keep him in the team. Although he had difficulty communicating with us, we wanted him to be part of the WarriorBots. We did not think it was right



Robot Design

We analyzed different strategies in order to minimize travel time between tasks. We grouped the tasks based on the action required e.g. deliver an object, push, pull, lift, etc.

By doing so, our objective was to minimize the travel time. Once we had a strategy, we designed the different arms to fit that strategy. Changes were made to the strategy and to the initial arm designs as issues were encountered.

The strategy with our robot was to have quick interchangeable arms. We designed an arm attachment device that we called the \$5 foot long. It is a device where the different arm designs are attached easily and quickly. Each arm is designed to handle 3 to 7 tasks. The robot is very robust and balanced. We used a fulcrum to find the center of gravity and to adjust the center of gravity as near to the center of the robot as possible. The objective was to have a well balanced robot to achieve accurate driving and turns. With the help of good programming, the robot has smooth and accurate turns. We achieved this by resetting the rotation sensors and stopping between turns. The resets and stops were included in My Blocks for a more efficient program. We had a problem with lack of memory in the NXT. In order to solve it, we downloaded Mini-Blocks. We tested different size wheels and tires to optimize turning consistency. We used light and ultrasonic sensors to help the robot navigate through the field. To obtain more consistent turns we utilized the walls on the field to straighten the robot.

One unique design strategy was to use a touch sensor on base to let the robot know the amount of turns needed on the interactive tasks. We designed a detachable platform with collapsible chassis to deliver

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Team 2746

Super Solar Powered LEGO Dudes

Lincoln Middle School

Mount Prospect, IL

Coach: Paul Wood



Mentors:

Robot's Name: Steve



Team Members

Matt Gibbons
Adam Malinowski
Jeff Nejd
Matt Wohlgemuth
Eric Wood

Where they are in the Pits: Wright

What Alliance they are part of: Rockets

Representing

Illinois State FIRST LEGO League Championship



Fun Facts

After our final robot run at the Illinois State Tournament, the coach started cleaning up the pit area and moving things out to the car, forgetting that the top teams performed in an exhibition round. The boys needed to race through the field house to find the coach, and the coach, who never runs anywhere, needed to run to the parking lot and back to retrieve the robot, while all of the participants in the event waited.



Teamwork

We evenly divided the work load between team members, giving each member tasks that they could excel at. When we visited the De La Fleur house, one member was unable to attend. To make up for this, we took notes and pictures so that at the next meeting we could fill him in on what he had missed. We shared the FLL experience with the Scouts and families of Packs 235 and 151, and with the faculty of Lincoln Middle School as part of their investigation of 21st Century teaching techniques, demonstrating our robot and performing our research presentation. We mentored the 2 rookie teams at our school, one of which qualified to attend the State Tournament.



Project

Rain levels in Chicago have been fluctuating between highs and lows much more than in earlier years. The wet years are getting wetter, and the dry years are getting dryer. So, we learned how to conserve water in order to keep water in Lake Michigan. Lake Michigan water levels are lowering because the City of Chicago reversed the flow of the Chicago river, causing waste water to flow toward the Mississippi. This is draining water from Lake Michigan. We compared this to the Aral Sea in Uzbekistan. We shared our information with the teachers of Lincoln Middle School, with the Lions Park Elementary School Environmental Night, and with our supporters at a fund raising event for the U.S. Open. We were able to consult with: Elizabeth LaPlante, the Manager of Lake Superior for the U.S. Environmental Protection Agency; Marcus de la fleur, a landscape architect that has created a residence which demonstrates sustainable rain water, storm water, and runoff treatments; and Peter Annin, author of "The Great Lakes Water Wars".



Robot Design

- Sturdy Design.
- 1:2 gearing on drivetrain.
- 2:1 gearing on lift arm.
- Front wheel drive.
- 2 light sensors, and 1 touch sensor.
- Well balanced design which can handle heavy attachments.
- Attachments can go on and off quickly.
- Jig allows consistent starting.
- We clear the 5 balls first to move them out of the way.
- We combined multiple tasks in each program.
- We are attempting 400 points, including the arrow points which help our competitors.

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Team 2827

IslandBots

Stony Brook, NY

Coach: Alexander Kirillov



Mentors:

Robot's Name:



Team Members

Cristina Mata
Daniil Lukin
Rahul Mane
Andrei Lukin
Andrew Mata

Where they are in the Pits: [Flowers](#)

What Alliance they are part of: [Golden Flashes](#)

Representing

SBPLI, Inc. LI FIRST LEGO League Tournament



Fun Facts

Most of us are in the same Math class at a special Sunday program at Stony Brook University.



Teamwork

We meet weekly to work on our robot programs and designs and discuss our research project. During our meetings, we run our programs and work on fixing any problems we have, making things more reliable, and thinking of various ways to edit our robot's design or create objects to help us with our missions.



Project

Our research project is about lobster die-off in Long Island Sound caused by rising water temperature. We learned a lot from visiting the Marine Sciences lab at Stony Brook University, and we constructed our own underwater temperature meter, putting NXT block with temperature sensor in a watertight container.



Robot Design

The robot attempts most of the tasks, dividing them into 5 missions. We programmed a "menu system" allowing one to select missions to run, so we can repeat or skip a mission. The robot uses the light sensor for orientation on the field; we also use the wall to align the robot.

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Team 3037

CYBORGS

Mount Washington, KY

Coach: [David Echsner](#)



Mentors:

Robot's Name:

Team Members

Team photo not available

Where they are in the Pits: [Kettering](#)

What Alliance they are part of: [Musketeers](#)

Representing

Kentucky FIRST LEGO League State Robotics Championship



Fun Facts

Information unavailable



Teamwork

Information unavailable



Project

Information unavailable



Robot Design

Information unavailable

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Team 3304

Mindstorm Masters

Learn Science & Math Club

Kansas City, MO

Coach: Rebecca Kidwell



Mentors: Maggie Jackson, Leah & Tom Neff, Chisa Wilcoxon, Charlene Hacking, Diane Ward

Robot's Name:



Team Members

Brooke Jackson
April O'Kelley
Sam Wilcoxon
Jenna Baker
David O'Kelley
Michael Ward
Eli Baker
Joe Jackson
Alex Wilcoxon
Ryan Emmons

Where they are in the Pits: Woods

What Alliance they are part of: Zips

Representing

Missouri State FIRST LEGO League Championship



Fun Facts

This year, our team froze to save the planet. We had a bunch of cockroaches on our team who were planning to take over Earth. We built pedal cars to demonstrate that fun, healthy, emission-free cars are possible. We fit 20 people on one office chair. We built teepees out of newspaper and paper plates, bridges out of spaghetti and marshmallows and catapults out of Legos. And, we learned that you can only win by working together.



Teamwork

We are a big team (55 kids in 3 FLL teams and 2 JFLL teams). Some might think being big would make teamwork hard, but we think it makes it better. We share everything we learn; so, we learn fast. We work in seven squadrons, each solving different problems. At the end of each work day, every squadron teaches the others what they've learned. Every squadron member has a special job (like Keeper of the Programs), but everyone learns how to and gets a chance to build, program, plan and present. We want everyone to have a chance to participate. Even our juniors learn how to operate the 'bots. Our juniors are our secret weapon. They are a lot of fun, and they think up some amazing solutions. Our coaches start every meeting with a team-building game or challenge. We have regular park dates and team parties. And, each year, we go rope climbing, rappelling, camping and zip-lining together. In the end, we are all good friends.



Project

In the three years we've been studying climate, global warming and energy, we've learned a lot. We've taken a six-week class on climate change and a 12-week class on energy and energy resources. In class, we built solar ovens, pedal cars, wind towers and lots of other cool projects. We also visited a wind farm, a geothermal plant and a zero-energy building. Then, we shared what we learned. We presented skits on wind, solar, green roofs and conservation to several hundred people. We created a series of community awareness events to raise attention about global warming. The first was a campaign called, "FREEZE to Save the Planet." Our team, mentors, families and friends froze in place at Kansas City City Hall, Union Station and the KC Regional Tournament to attract attention; then, we handed out freezer pops attached to postcards with tips for saving the planet. We posted an invitation on our Web site and YouTube, asking others to host similar events in their communities. Most recently, we exhibited our pedal cars on Earth Day at the KC Zoo and the Midwest Regional Council's meeting on green living to demonstrate that people can have fun, healthy, completely pollution-free cars.



Robot Design

We work very hard to keep our designs simple. So, we designed our robot to:

1. Offer easy access to the batteries
 2. Allow us to see and easily operate the robot controls
 3. Permit us to easily make repairs and design changes
- We also found that this year's challenge calls for some clever solutions. So, we also built our robots to:
1. Be compact and make tight turns to get around the house and into the corners of the mat
 2. Use a light sensor to guide us into tight spots like the approach to the house, the drilling rig and the ice core sample
 3. To receive commands from the robot operator through the touch sensor

Whenever possible, we combined missions and attachments so that we never have to add or remove components. For example:

1. We have an attachment that delivers the levees and the people to the red area, picks up the buoy and triggers the storm.
2. Our robotic arm opens the house window, turns on the house lights, raises the house, picks up and delivers the ice core sample and picks up and moves the drilling rig.

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Team 3345

Team μ

Young men who love robots, computer programming, and pizza and who strive to exemplify gracious professionalism in all we do.

Tampa, FL

Coach: Valerie Crouse



Mentors: Rick Livernois

Robot's Name: Complexitron II



Team Members

William Livernois
Tyler Hanks
Carson Wolf

Where they are in the Pits: Kettering

What Alliance they are part of: Tigers

Representing

FIRST LEGO League Florida State Championship



Fun Facts

Each summer we run a Lego Camp for children age 6-11. This past year, we had to expand our camp to two sessions because it was so popular. This coming summer, we have been asked to hold 4 sessions and we hope to devote 1 session as a "girls only" camp to encourage women in science.

We volunteer as judges and mentors at rookie events and FLL tournaments. We host many community events like TEMPEST N TAMPA to demonstrate Lego League. This is how we give back to the FLL community and practice Gracious Professionalism.

William learned to ride a unicycle during this FLL season and is trying to entice Tyler to learn, too.



Teamwork

One of our favorite parts of team meetings is the teamwork challenges our coach gives us. These teamwork challenges unite us as we start thinking, listening to each other's ideas, and working as a team. We are a very small team this year so teamwork was essential to be able to accomplish all that we needed to do to be ready for Mega Meltdown.

One problem we had to solve was helping Carson to memorize his lines for the presentation even though he did not have a lot of time.



Project

We spent 8 hours at the Citrus Research Center in Lake Alfred, FL speaking to entomologists, horticulturists, geneticists, and engineers. We had no idea that there were so many sciences devoted to improving oranges. We had to translate websites from Portuguese in order to gather data from our partner community, Sao Paolo, Brazil.

We learned a song about oranges. Want to hear it? Ask us!



Robot Design

Carson improved the pneumatic switch by implementing a clutch gear and ratchet. This was his original design and made setting the pneumatic valves much easier for the rest of us.

We use pneumatics which are very cool but we have learned that the tubing and pistons do not have a lot of integrity over time (THEY LEAK!) We don't think we will use pneumatics in the future as they are not as reliable as they need to be for this competitive setting.

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Team 3415

LOL COMETS

Girl Scouts - Mt. Wilson Vista Council

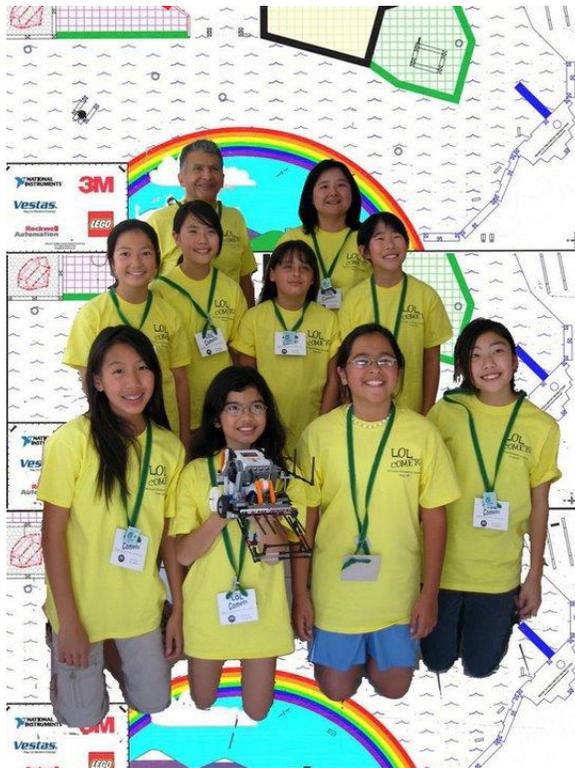
Los Angeles, CA

Coach: Tony Ayad



Mentors:

Robot's Name: Comet



Team Members

Allison Ayad
Audrey Chen
Emily Chang
Gwendolyn Thornton
Kaitlyn Li
Katherine Perez
Kimberly Kodama
Megan Hu

Where they are in the Pits: **Kettering**

What Alliance they are part of: **Musketeers**

Representing

Los Angeles Region FLL Championship Tournament



Fun Facts

- ** We are experts in Thin Mints, Samoas, and Do-Si-Dos!
- ** We are an all-girl team!
- ** We are a girl scouts troop from Southern California!
- ** Five of us are 5th graders and three are 6th graders.



Teamwork

We learned to work together by programming and building the robot in groups. Team work helps a lot because some of us didn't know how to program, so the girls who do helped teach the other girls. Some of us are scared of failure and we help each other get through it. The support we received from our team encouraged us to keep improving even if we failed missions completely.



Project

We met 2 scientists who told us that kids can make a difference to solve climate change by learning about it and SPREADING THE WORD. Then more people can vote & have government take action. Since Girl Scouts do not have a badge program for Climate Change, we created one! We created a badge plan with lots of activities and named it Climate Connections. We taught our badge to 5 troops at our school and had 60 kids and their parents make a pledge to take action.



Robot Design

We keep changing our robot to get more points. At first, we had only a parking spot attachment, the scooper and the fork. Our robot is front wheel drive and has 5 attachments. 1) the Y because it's shaped like a Y; the candle stick to align the arrows; 3) the box to trap stuff; 4) the SPORK; 5) the transporter

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Team 3423

DITSci Chx

Deerfield Institute of Technology and Science

Eden Prairie, MN

Coach: [Dean Hystad](#)



Mentors:

Robot's Name: [Peter the Donkey](#)



Team Members

Abby, Alyssa, Ann, Beth

Where they are in the Pits: [Woods](#)

What Alliance they are part of: [Bulldogs](#)

Representing

Minnesota FLL State Championship Tournament



Fun Facts

We have been friends and known each other for a really long time. One team member has known another since preschool and the other two since kindergarten, and two are twins. Everybody on the team have known each other on average for 8 years which is huge since we are all 12.

Our first year we were the "Nano Chix", because of the theme. The next year we had trouble coming up with a name. Our coach registered us using the name "DITSci Chx" for Deerfield Institute of Technology and Science (an imaginary school that is located inside his house). He thought we would hate the name so much we would work hard to come up with a better one. We never did. Everybody thinks we are sisters because three out of the four are red-heads and our coach calls us his girls all the time. We meet after school at one of our teammate's house. It's nice because we just ride home on the bus with her. We eat a snack, play outside for a while, then start work.

We wear lab coats as the team uniform. The lab coats were for our first research presentation where we pretended to be in a dentist office while talking about



Project

Our project is about urban farming. Urban farming is growing food close to where it is needed (cities). Now food is shipped in from all around the world (especially during the winter). We think building rooftop greenhouses all around the city will help solve the problem. Less food has to be imported. The food is fresher. There is less pollution from shipping. The plants may reduce CO2 levels in the air and help stop the urban heat island effect.

We think hydroponics will be used to grow plants faster and have longer harvest times. We are doing an experiment with hydroponics to see how much faster we can grow lettuce. We also want to see if hydroponic lettuce tastes as good as that grown in dirt.

We talked to a greenhouse farm in Minnesota called Bushelboy. They grow hydroponic tomatoes and lettuce in greenhouses all year round.

At the regional and state tournaments we handed out flyers that talked about the benefits of urban farming and buying local food. We stapled a packet of seeds to each flyer. We asked each team to have a little garden and plant their seeds. We shared about FLL in our class.



Teamwork

We learned that part of getting a good teamwork score is always treating each other in a polite and respectful way. Even if it sometimes feels a little fake. We have been friends forever and are not always "nice" to each other. But we know when someone's feelings are hurt, or they are feeling left out. When that happens we do something to fix the problem right away.

We try to always agree on important decisions.

Everyone gets to talk about their idea. If it is a robot problem we try the different ideas and see what one works best. For other things we sometimes think about it for a while and decide later. If we get frustrated we go do something else for a while (like play outside). This reminds us how much we like each other and makes it easier to reach a decision.

We don't see anything too special about FLL core values. Being helpful and treating people with respect is how we try to act all the time, not just at FLL. We know how it feels to lose, and how it feels to be treated bad. We don't like it, and don't want to make other people feel that way.



Robot Design

It has tires on the side for riding along walls. The wheels are wide apart for accurate turns. It has weights to have good traction and not tip when it picks something up. One of the attachments picks up the house, turns off the lights and opens the window all at the same time. Another one carries all the stuff to the research area. A really cool attachment can pick up all the carbon balls in like 15 seconds. We also do the storm gate, agreement arrows, money ball, ice core and ice drill during one mission with one attachment. We don't do any aiming. The robot is really easy to run. Even our coach could do it (maybe). The robot uses our high school colors (black, red and white).

Our robot program makes it really easy to pick and run missions. All the missions show up on the screen and we use the arrow buttons to pick which one to run. Push the orange button to run it. When we run on the table the next mission is picked automatically. All you have to do is push the orange button.

We use lots of MyBlocks. Our blocks let us program using millimeters for going straight and degrees for turning. The turning degrees are for how much the robot turns, not the wheels. We can write programs using a protractor and a tape measure.

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Team 3796

Iowa C4 Squad

Johnston School District

Johnston, IA

Coach: Mark Gee



Mentors: Dr. Mark Cooper, Craig Cogil

Robot's Name: FLL - Functional Lego Laborer



Team Members

Donald Gee
Mark Gee
Brandin Johnson
Luke Halterman
Joe Tegels
Jack Dreyer

Where they are in the Pits: Flowers

What Alliance they are part of: Golden Flashes

Representing

Iowa FLL Championship



Fun Facts

We like to listen to the "Saturday Night Fever" CD when we program. We have six members - five 4th Graders and one 8th Grader. We have two brothers on the team. Everyone has attended Henry A. Wallace Elementary in Johnston, Iowa. Three of us went to Lego League Camp at Iowa State University.



Teamwork

We brainstorm, experiment and test then we go with the best idea. Using water soluble material for the Corn Carpet did not work because the glue melted it and it tore easily. We had to set deadlines because testing and talk can go on and on. Six is a good number to have on a team. Everyone needs to arrive on time so we can get started at the same time. We tested each other to see if we could program the robot by ourselves. We all could.



Project

Climate Customized Corn Carpets (C4) can help small plot planters all over the world. We toured the labs, green houses and research facilities at Pioneer Hi-Bred International. Pioneer is the world's leading developer and supplier of advanced plant genetics and it is headquartered in our home town. We also visited and talked with experts at the NOAA Weather Station and at Iowa State University. People like our project idea. One change in a process can effect many other things. For many reasons, it is hard for farmers to adapt. There are laws regulating genetically modified seed.



Robot Design

We experimented with different bases then decided to go with two large wheels in the front and two skids in the back. This seems to help the robot be more reliable and turn better. On the front, we have a motor and a multi-purpose attachment that will do 8 challenges. We are still making improvements.

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Team 4158

SAY WATT?

Homeschool

Edison, NJ

Coach: Jim Carr



Mentors:

Robot's Name: **Watt Bot?**



Team Members

Frankie Carr
Nathan Rutter
Jonathan Castellano
Jon Baay
Nick Baay

Where they are in the Pits: **Kettering**

What Alliance they are part of: **Musketeers**

Representing

First State FIRST LEGO League Championship Tournament



Fun Facts

Penalty for messing up runs is to do push-ups.
Our sister team actually has our sister (and other siblings) on it.



Teamwork

Team has been together for three years. Last year in FLL- becoming an FTC team.
Christian homeschooling team now mixed.
Team used brainstorming sessions to come up with ideas. Collaborative effort on hardware and software and voted to resolve design disputes.
Definitive roles for the team members.



Project

- Attended climate change conference
- Talked to expert at Austin Energy and others
- Tried to patent invention
- Presented project and robot at street fair, church, Villanova University, Liberty State Science Center, Earth Day.
- Did a live segment on TV on channel 12 News



Robot Design

- Ball catcher and delivery system.
- Lever-activated push sensor
- Tested to find best wheels
- Good engineering team effort
- Software used menus, sensors, and loops to direct the robot and recover from problems.
- Extensive work to make attachments multi-purpose and quick to detach.

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Team 4307

Logos Legos

Homeschool

Hot Springs, AR

Coach: Shelly Beck



Mentors:

Robot's Name:



Team Members

Garrett Beck
Hannah Beck
Ethan Eye
Aaron Fuhrman
Andrew Guresky
Peter Guresky
Miller Pelton
James Rowe
Austin Sowerbutts
Stuart Sowerbutts

Where they are in the Pits: [Wright](#)

What Alliance they are part of: [Polar Bears](#)

Representing

Arkansas FIRST LEGO League Tournament



Fun Facts

We are often referred to as the "leaf heads" because of our unusual hats. We are known to "bark" as we cheer for our teammates. Our team motto is Wood You Please Help Us Plant the Planet.



Teamwork

Everyone on our team programs the robot, helps plan the project, and participates in the presentation. By the end of our season each team member will have run the robot in some type of competition. Our team ages range from 9-14 so our older members help mentor the younger members.



Project

Experts we talked to included a meteorologist and a representative from Weyerhaeuser. We shared our research with people from four different states at one of our exhibits. We learned that planting trees can absorb the extra carbon dioxide in the air and make our environment cleaner in which to live.



Robot Design

One mission we have designed combines several tasks: Delivering the bicycle, insulation, & computer to the house, opening the window, raising the house, turning off the lights, capturing the gold ball, and raising the flood gate! A whopping 115 points in one run. Our robot is built like a tank - strong and sturdy.

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Team 4308

Oxford Wildcats

Oxford, MI

Coach: Don Gilmore



Mentors: Scott McBride, Dawn Kessler, Jennifer Gilmore, Dr. Champagne, Larry Protasiewicz

Robot's Name: The Fortress



Team Members

Sean Gilmore
Olivia Gilmore
Wesley McBride
Ben McBride
Courtney Kessler
Zachary Kessler

Where they are in the Pits: Carson

What Alliance they are part of: Falcons

Representing

Novi Climate Connections Championship



Fun Facts

All of our team members are on the Academic Honor Roll
 Several team members are all A's recipients
 All team members play sports and participate in other extra curricular activities
 We have 3 families with 2 siblings each
 We have 4 middle school students and 2 elementary students
 We use a SharePoint website to communicate with each other when we cannot meet as a team
 We made and posted our first video on YouTube and TeacherTube
 Each family has a teacher parent
 We hang out as friends before and after the Lego season
 Team motto: Never give up, try again



Teamwork

When we make decisions, we get input from all members. We listen to and respect other's ideas. We know that each member has something to contribute to the task. We vote to make final decisions. We divide up the jobs and share responsibilities.

We compliment each other on their hard work and good ideas. We do not allow negative comments even as jokes. We give a friendly reminder if needed.

We do not brag about our accomplishments. We encourage others. We are role models to new teams and show that everyone is a winner despite the final scores.

We have learned that when we work together we can accomplish great things.

We have learned that being positive and supportive of others is contagious. When we cheer on other teams, they cheer for us.



Project

We learned that coming up with an innovative solution takes a lot of hard work. We had to read and talk to a lot of experts. Each time we contacted a specialist or community organization it led us to more questions and more specialists. We had a problem of coming up with an innovative solution that didn't already have a patent. We were excited to learn that someday we may come up with an idea that we could get patented. We were surprised that over 900 other people were interested in our research project and have viewed our first video that we posted on YouTube and TeacherTube to make people aware of this problem. We also learned that we share climate problems with other countries around the world and that if we work together as a team that we can solve the problem for a lot of communities around the world. We wanted to know what our Michigan government was doing to protect our waterways so we sent letters to our representatives and senators to ask them to support bills that protect Michigan's waterways. We learned about House and Senate Bills and the legislative process.



Robot Design

We did not use the tri-bot robot design this year. We created our own innovative design that we thought would work best for our missions this year. We put most of the robot weight over the wheels to solve the problem of slipping wheels when turning. We have many colorful attachable areas on our robot that make it easy to attach our attachments. Our coolest attachment is our All-In-One House Lifter. It turns off the light, opens a window and lifts the house in 10 seconds.

Our programs are organized in one main program which selects individual board missions to run in sequential order. We can also rerun or skip programs. We have programmed our robot to detect a stall using a rotation sensor, not a touch sensor. The robot can automatically progress to the next program block even if a stall is not detected.

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Team 4330

Mega Moo

Jones Valley Elementary

Huntsville, AL

Coach: Kristy Dunn



Mentors: Chris Joiner, Mary Krell, Rick Letson

Robot's Name: BU-UBBA (Build Up 'Ur Buddy---ahhuh!)



Team Members

Maddie Bradford
Joanna Broyles
Mac DeLay
Wyatt Dunn
William Joiner
Rachel Krell
William Larsen
Michael Mullins
Nick Nurre
Sam Smythe

Where they are in the Pits: Resnick

What Alliance they are part of: Marauders

Representing

Alabama FLL Championship Tournament



Fun Facts

Favorite Phrase: We didn't invent the poop, just the poop catcher!

Team Motto: It's all a bout what we have learned together!

Team Cheer: Mega Moo, We Catch Poop!

Funny story: Our team has several future chemists in the making. They love experiments. We have exploded two balloons filled with liquid nitrogen. And they just had to experiement with cow poop. Mr. DeLay climbed over Mr. Jones fence(with permission) to gather up some fresh poop. Next, we heated it and collected the methane in a balloon attached to the heated poop. To prove it was mathane in the balloon and not just air, we released the methane from the balloon slowly over a candle flame and boom! They still talk about this one!

Praises: Several team members received state awards during the Alabama Council of Technology Computer Fair last month dealing with their research brochure and web page design.



Project

Our big idea for the "Poop Catcher" all began when our team stumbled upon a funny picture of a cow with a pink tank strapped to its back in Argentina where a scientist was measuring the amount of gas being released by the cow. We just couldn't get past all the jokes about the methane gas and the crazy inventions we should create to capture the gas. With all their excitement and creativity we had to find out more. Dr. John Christy a NASA Climatologist helped us find weather data dealing with weather cycles and temperature. Dr. Rafina Ward from Alabama A&M University and Kathy Hornsby from Alabama's Department of Energy helped answer our questions about the greenhouse effect and the part that agriculture byproducts play. We learned that 12.5% of the annual greenhouse gas emmissions are from agriculture byproducts and that the methane that cows produce traps 296 times more heat that co2. Our team wanted to find out if farmers in Alabama were doing something like the dairy farmers in Vermont who were turning cows poop into biofuel; so we contacted Todd Hall at the Auburn Extension office to see what farmers in our state were doing. He only knew about a chicken farmer in South Alabama that was turning chicken poop into biofuel. Our team decided to help alabama's cattle farmers and our environment at the same time by creating our own "Poop Catcher". We created many designs and shared them with a member of the Alabama Cattleman's Association. He helped us learn that farmers will only use the "Poop Catcher" if it is easy, cheap and if it empited itself. Well, that was a challenge! But, with help from two local engineers, a few experiments and a little sewing we finally created our very own "Poop Catcher". Our team was even invited to



Teamwork

Mega Moo is one H.O.T. team.

H-helpful to each other,

O-openminded

T-teamplayers

Believe it, this team of first time 4th graders is HOT!

They have been waiting a long time to join the Robotics Team. This year we had forty-five 4th graders apply to be on the team. Each teammember has helped each other to learn the skills necessary to program the robot. It was hard at first but problem solving was a team effort and that kept everyone from getting discouraged.

We started this year with one coach and due to some problems we had to find another coach. But the team never showed discouragement. They continued working hard and helping each other. One thing the team had to overcome was the fact that they didn't really know each other very well. We spent a lot of time playing get to know you games and found out that we have many things in common. We also have a team member with some special needs and this team has helped him and encouraged him along the way. They know his weaknesses but overlook them and accent him 100%



Robot Design

Our Robot 2 wheel creation was a team decision based on many designs and redesigns. We quickly realized that our 3 wheel robot did not offer enough support, balance and function to get up and over the research area. We replaced the third wheel with a drag-bar which works well for our planned approach to the missions. This 4th grade rookie team spent most of the beginning months just learning the program and the skills needed to get the robot to move and turn. They were very quick learners with strong math and engineering skills along with determination and great support for each other that helped them to do a fantastic job in our state's December tournament. When I asked the team about our robot's strength they shared that our robot moves consistently and accurately at various speeds and that our third motor is very strong and easily accessible for our attachments to be mounted and removed so easily and quickly between submissions. Our team mission strategy was to organize an approach to the missions by location (where the items were on the table), and moximizing our points by combining as many missions as possible as well as mazimizing our time. We quickly added the clear the table mission first because the balls and other things kept messing up our programs getting the other missions completed. Our speed strategy is to use speed wisely. Our robot goes fast is short quick runs which saves us time but it runs slower during our turns, tricky curves or when we deliver items to the research area. Time verses degrees strategy helps us with our missions that are not as accurate. Our battery strategy by not using the rechargable battery pack allows us more accurate runs during competition. Attachment strategy helps us by grouping our missions into things we can

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Team 4643

Nitro Xtreme Team

Wildwood, MO

Coach: Ron Colletti



Mentors: Teresa Colletti, Kristina Hanley

Robot's Name: Bob



Team Members

Kyle Bagwill
Steven Hanley
Christopher Colletti

Where they are in the Pits: Carver

What Alliance they are part of: Raiders

Representing

Missouri State FIRST LEGO League Championship



Fun Facts

- We named the polar bear – Toby the Solar Bear
- We are more fun when we have meetings on Friday than on Sunday
- We accidentally “flipped people” when we were moving them then decided to use the “flip” method in another mission program
- We practice Team building with Wii SuperMario Kart



Teamwork

- We were a team last year so we worked even better this year
- Mostly had problems with robotic missions
- Had problem finding experts but learned through research and coaches experience.
- Had fun as a team doing demonstrations at Science Center and Rockwood Science Expo
- We made sure we all had a chance to talk



Project

- Learned floods are not caused by rain alone.
- Shared with Gateway Academy School (class of a team member’s brother)
- Tried to meet local news weathermen but were turned down. Learned from research & Coach.
- Flooding is a major issue to our community; a lot of work is done to control flooding.



Robot Design

- Designed robot to be strong & balanced.
- One STRONG, STABLE arm (comb type) used to do most missions plus a push bar.
- Two minor arm attachments to help.
- Combined many missions
- Arm “flip” used to “deliver” a person
- Motors run backwards due to how robot was built

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Team 4811

S.M.A.R.T. (St. Mary Academy Robotics Team)

St. Mary Academy Bay View

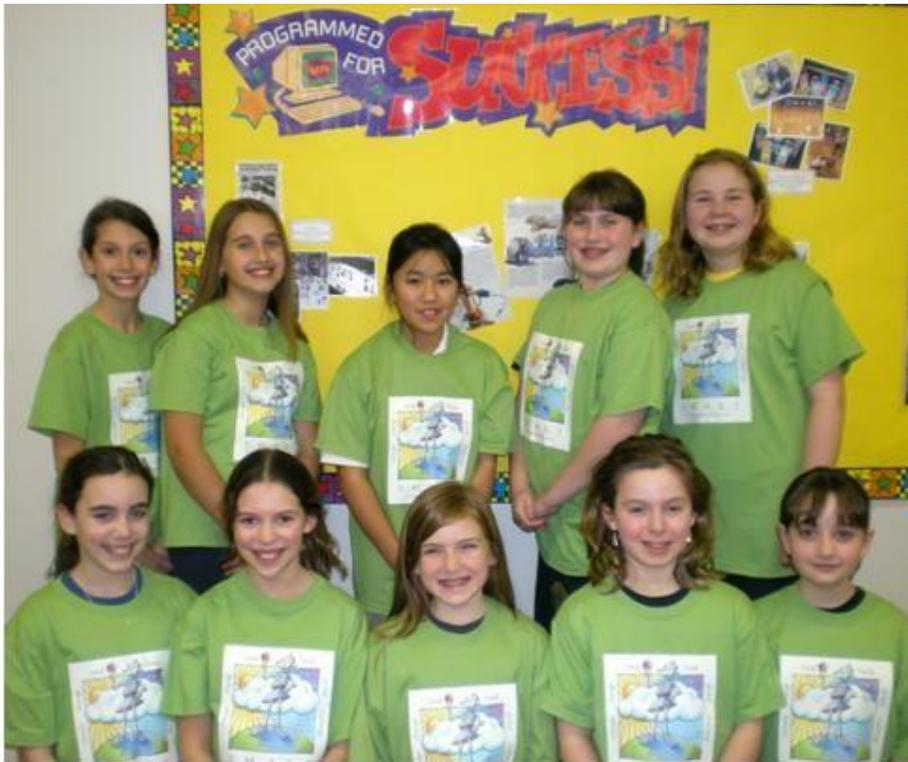
Riverside, RI

Coach: Linda Grasso



Mentors:

Robot's Name: Bengalbot



Team Members

Jane Benum-Paolantonio
Alix Santos
Allison Cross
Sarah Healy
Camilla Macera
Jacqueline Capuano
Cameron Wessel
Leanne White
Lindsey Gray
Elizabeth West

Where they are in the Pits: Kamen

What Alliance they are part of: Bobcats

Representing

Rhode Island FLL Robotics Championship



Fun Facts

We defied all the odds to get us to the FLL US Open Championship...

*This was our first year as a team and entering FLL

*Our team is made up of all girls

*We were the youngest team at our local competition

We have an adorable robot mascot, here at the competition, that was created by the coaches to match our team logo.



Teamwork

We learned that working together is difficult at times, but in the end, rewarding. We also learned how important it is to listen to each other's ideas. If our robot didn't do the tasks correctly, we needed to collaborate and share ideas to make it work. Most importantly, we learned that teamwork is essential to be successful.



Project

Our research focused on how buying food locally can have a positive impact on climate change by reducing greenhouse gases and fuel transportation costs on shipping products around the world. We spoke with the company that provides the food service at our school. To our surprise, they do purchase most of the food locally. In doing research about our local area we found that we have several community farms that people can pay a fee to help maintain and in return receive produce.



Robot Design

Our motto is: keep it simple! Because this is our first year and we do not have a lot of experience building complex robots. We built a robot that we could work with. It's simple in design but accomplishes what we need it to do.

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Team 4959

The Atom Smashers

Houston, TX

Coach: Mr. Salinas



Mentors:

Robot's Name:

Team Members

Team photo not available

Where they are in the Pits: Wright

What Alliance they are part of: Rockets

Representing

Southern Texas FLL Championship Tournament



Fun Facts

Information unavailable



Teamwork

Information unavailable



Project

Information unavailable



Robot Design

Information unavailable

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Team 5097

W.E.S.T. - World Environment Saving Team

Lakota West

West Chester, OH

Coach: Mike Fullington



Mentors:

Robot's Name:

Team Members

Team photo not available

Where they are in the Pits: [Kamen](#)

What Alliance they are part of: [RedHawks](#)

Representing

FLL Ohio State Championship



Fun Facts

Information unavailable



Teamwork

Information unavailable



Project

Information unavailable



Robot Design

Information unavailable

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Team 5266

Pirates of the Lego Storm

Granville, OH

Coach: Jeffry Richards



Mentors: Peggy Corrigan, Tom Bressoud

Robot's Name: BOB



Team Members

Ben Bressoud
Sam Corrigan
Michael Dickson
Sage Kaplan-Goland
Austin Richards
Cameron Richards

Where they are in the Pits: Woods

What Alliance they are part of: Zips

Representing

FLL Ohio State Championship



Fun Facts

- Our coach had to go to India. We finished the last ten days of the season without him or the technical mentor! We learned how much we had learned, and how much we could do on our own.
- We made up a song for while the program is downloading to Bob. Ask us!
- We learned that this team is about much more than just robot building and programming.



Teamwork

- We learned how to communicate with each other and with judges with kindness and respect. A few members of our team find social skills and eye contact challenging. We met that challenge and are proud of our progress!
- We had a lot of fun doing teamwork games.
- We learned how to best use the strengths of each teammate.
- We learned that it is okay to share ideas and strategies with other teams.



Project

- We loved mining the data with SQL.
- Interviewing the farmers was interesting. We learned what their challenges are and that they were really helpful!
- We learned about design & testing & repeatability.
- We learned a lot about water harvesting!
- We learned that climate change affects everyone.
- We learned how to contact people around the world by email and discovered how helpful people can be.



Robot Design

- We like Bob's sturdiness & consistent movement.
- Reduction gears help Bob move fast and help the bobcat lift with strength.
- We love the other simple/elegant attachments that fold out like a swiss army knife.
- In programming, we liked learning about variables.
- In strategy, we liked making a few long mission runs where the robot does a lot of things.
- In building, we liked learning about reduction gears and forklifts. And about different sizes and kinds of wheels.

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Team 5772

Virtual Vikings

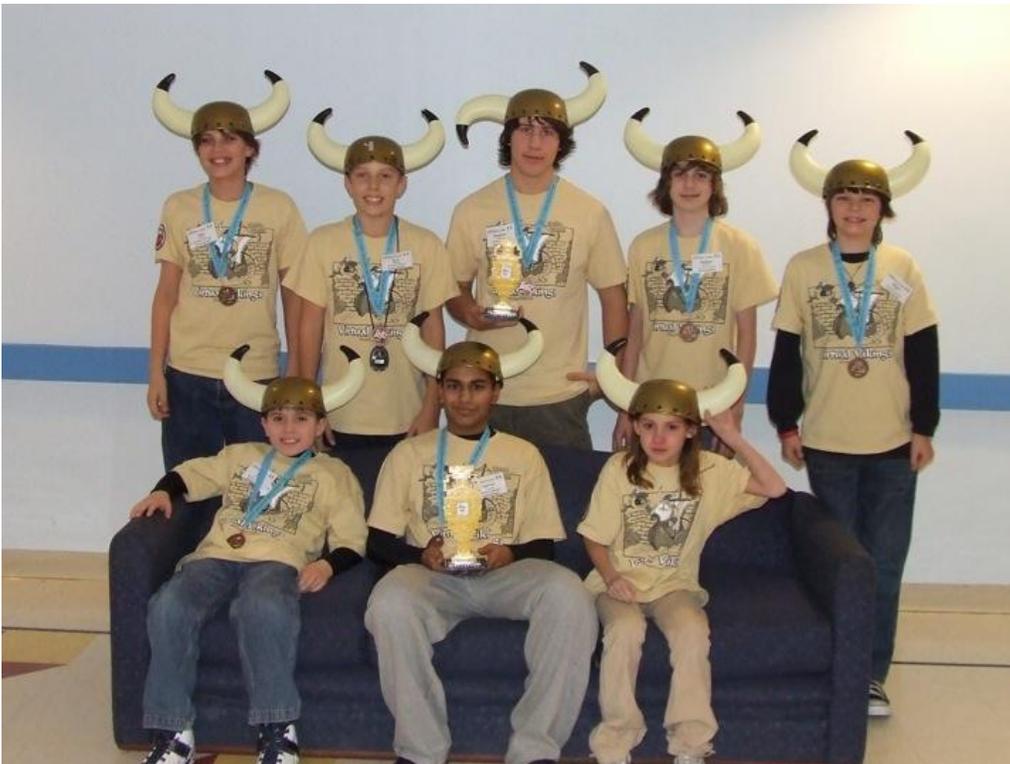
Morgantown, WV

Coach: Brian Woerner



Mentors: Joni Roh, Linda Pentz

Robot's Name: Divinus Hjornetann



Team Members

Tommy Alappat
Nathan Spencer
Cole Frasher
Eric Tennant
Will Pentz
Stephen Woerner
Adam Roh
Teresa Woerner

Where they are in the Pits: Carver

What Alliance they are part of: Penguins

Representing

West Virginia FIRST LEGO League Robotics Tournament



Fun Facts

Our robot was totally redesigned after our state competition. During this process we 'cannibalized' our original robot. We also decided to rename our bot, Divinus Hjornetann is Divine Cannibal in Norwegian. We choose Norwegian because of our team name and Divinus came from the team we contacted in Norway.



Teamwork

We shared our love of robots with the autistic children at our school, as well as a first grade class. Many meetings started with teamwork exercises such as, blind-folded relay, football, building card towers, and other fun challenges. We all learned to help each other with our strengths and weaknesses, which let us all learn about ourselves.



Project

We learned we have the 'smartest' bridge in the world in our town. We learned about sensor technology in bridges and that there is a great product out there to de-ice roads and bridges, Safelane. While researching bridges we talked to 2 professors at WVU and an engineer from AECOM.



Robot Design

We went for strong, simple, and sturdy. At our state tourney we took too much time attaching things. We wanted to simplify that and make things as sturdy as possible. We worked on making things as multi-functioning as possible. It tooks lots of transformations.

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Team 6072

New Hartford RoboSpartans

New Hartford, NY

Coach: Robert Payne



Mentors:

Robot's Name: Spartan 1

Team Members

Scott Murray
Maysara Elazzazi
Ryan Payne
Ryan Murray
Matthew Holmes



Where they are in the Pits: Curie

What Alliance they are part of: Pioneers

Representing

Hudson Valley FLL Tournament



Fun Facts

The RoboSpartans are 5 member, first year FLL team from the center of New York State. The team spends lots of time sharing information on FLL and robotics with students in the Mohawk Valley region. They enjoy adding comedy to their presentation and goofing around, but when it comes to competition, they are extremely focused. The team loves playing "Ultimate Foosball". Stop in to see them in the Marie Curie Pit and ask them to explain!



Teamwork

We each chose an area to specialize in while learning how to do each other's job: Maysara - Teamwork & Core Values, Matt- Robot Programming, Ryan M - Robot Attachments, Ryan P - Robot Design and Scott - Presentation.

We all had separate times when we were discouraged and wanted to quit the team, but we always talked it out and now like playing Ultimate Foosball and drinking lattes together. We learned that we couldn't have accomplished anything without working together and learning to compromise. By splitting the work, we were able to get more done on our missions and on our presentation. We also learned to make major decisions by multi-voting on ideas and coming to consensus on a final choice.



Project

We did our research on a local climate change problem mentioned by our Town Highway Superintendent. Sand used on the roads during winter months ends up in Sauquoit Creek causing flooding. Our solution: a sand & sediment separator at major storm drainage points to decrease annual flooding. Our town thinks our idea may be possible in the near future!



Robot Design

Simple! Solid! Sturdy! - three words we use to describe Spartan 1!

We do drop tests on the robot that are sometimes unscheduled! Our strategy is to group missions and use the simplest design for the robot, attachments and programming while going after the most points!

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Team 6209

The Drought Busters

The Meadows School

Las Vegas, NV

Coach: Tom Rehberger



Mentors: Marc Micek

Robot's Name: DOMO



Team Members

Max Rehberger
RJ Haskins
Ian Onufrieff
Zach Telles
Nathan Lee
Tierra Patmavanu
Sabina Manzini
Audrey Chang
Tyler LuCurelli (unable to attend)

Where they are in the Pits: Resnick

What Alliance they are part of: Marauders

Representing

Nevada FLL Championship Tournament



Fun Facts

We have a special mascot
Our team shirts were drawn by a fellow student at our school



Teamwork

We learned that when we work together the team excels. And when everyone does their part things get done faster. Cooperation is a key factor.



Project

We had John Fredericks, Chief Meteorologist at Channel 3 speak with us about the climate change in Nevada.



Robot Design

Movable arm
Cage trap
Truck that can carry 5+ items and climb over wall

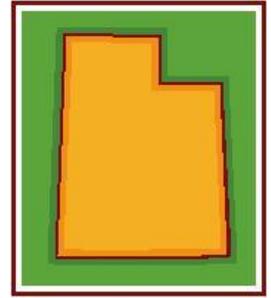
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Team 6255

Team Typhoon Techno

Sandy, UT

Coach: Sid Stock



Mentors:

Robot's Name: Panda



Team Members

John Fisher
Brysen McDonald
Stanford Sorensen
Corey Stock
Johnathon Stock
Zeb Van Hoffman

Where they are in the Pits: Woods

What Alliance they are part of: Zips

Representing

Montana FIRST LEGO League Tournament



Fun Facts

Every time we get together for meetings or programming sessions, we always go outside for breaks and play our own creative version of tag, where we earn respect points. We also have our own versions of Ghost-in-the-graveyard, Capture the Flag, and team snowball fights.

Our first successful mission was the polar bear mission but one of our team members accidentally called it a Panda bear and the name stuck. The mission was called "Go Panda" and thus the name of our robot is "Panda".

We also have a wide range of ages on the team: 10,11,12,13,14,and 15 years old.



Teamwork

We were a group of strangers that came together and learned how to be a team. Over the past several months we have been able to learn about each others strengths and allow everyone a chance to grow and develop. We have come to appreciate the unique talents and abilities each person brings to the team. We have made Gracious Professionalism a key in all of our team activities. Many close friendships have developed from this team.



Project

We talked with six different scientists, including professors from the University of Utah and Brigham Young University, the National Weather Service, a climatologist and more. We went on three field trips including the Department of Water Resources and the Utah Water Symposium. We met twice with an auto hobbyest who taught us how HHO gas works as a hybrid in his car and his truck. We designed and build 5 of our own HHO generators and experimented with running a lawn mower on HHO.



Robot Design

We are very proud of our multi-purpose, universal attachment that we use on almost all of our missions. This saves us time in changing attachments. We use it to capture and carry all types of mission models and also add simple quick attachments to complete other missions. We also have a unique design on the front skids that can detect with a touch sensor when we run into objects or the wall.

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Team 6287

Unknown

Sharon, MA

Coach: Yi Zhou



Mentors: Mehrdad Sasani, K. R. Polu, Kalpana Polu, Faezeh Rashid

Robot's Name: Climate Control

Team Members

Daniel Griffin
Rahul Polu
Puya Sasani
Frank Zhou



Where they are in the Pits: Flowers

What Alliance they are part of: Yellow Jackets

Representing

RoboNautica -- MA State Championship



Fun Facts

In the beginning of the season our team had to choose a name for our team. For the first few weeks we didn't give finding a name much thought and at the weekly SYRA meetings they would call us "Unknown". When we finally decided we should decide on a name we couldn't decide on one. One of us finally said "Lets just use Unknown, it might get some people confused at competitions and we might have some fun with our name." We agreed on Unknown and we have never regretted our choice.



Teamwork

This is our team's first season and in the beginning we had underestimated the time and effort required. We had trouble getting work done because of our lack of teamwork. In the middle of the season we noticed that each team member was doing things individually. We decided that we should do more things together as a team. A couple of weeks after we decided to work as a team, we improved our robot design and research project drastically. Throughout this season, our team has learned that teamwork is essential for success and without teamwork nothing will get done efficiently in both practices and competitions. This year we also learned about gracious professionalism. Gracious professionalism has taught us to be as competitive as we can but also be respectful to the people we are up against. We have offered to help teams in practices and tournaments. We think teamwork and gracious professionalism are both essential for success. It is important to demonstrate what we think about teamwork and gracious professionalism in all activities of the season.



Project

After individual research by each team member, we determined a topic for the challenge project. Through rounds of team discussions and debating, we finalized an outline and action items for the project. To find solutions to our specific climate problem, our team has traveled to places, contacted experts in the field, and did many online searches. We then planned our presentation strategies and shopped for necessary supplies. Our oral presentation rehearsals at SYRA meetings, team meetings, and tournaments have also helped us to re-focus and understand this project better. This year our team learned much more about how we impact the environment and how we can make our community and ourselves more eco-friendly.



Robot Design

We studied the challenges first before planning out the best strategic routes to achieve all 400 scores. Unlike other teams, we built our attachments before we built the robot and we designed our robot based on our attachments. We then worked on the technical aspects of the robots through many many rounds of troubleshooting. Our troubleshooting including but not limited to researching online, testing different types of batteries, testing different types of wheels, improving robotic hardware designs, and optimizing run time. Practices at team meetings and competition runs also help us to better the robot performance.

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Team 6850

Lightning Stars

Nebraska Science and Technology Center

Omaha, NE

Coach: Malathi Balu



Mentors:

Robot's Name: **Recyclone**

Team Members

Niranjana Balu
Sukarn Naidu Chokkara
Sunandhaa Narasimhan
Karthik Narayanan
Poorna Rathna
Ramasubramanian
Adithyan Sethupathy
Sharadh Sivamani
Sindhuja Suresh
Archana Varman

Team photo not available

Where they are in the Pits: **Curie**

What Alliance they are part of: **Big Red**

Representing

North Dakota Championship FLL Tournament



Fun Facts

Everyone in the team knows to play music instruments and they are good dancers. This turned out to be our quick energizer on long practice days.

Our team motto is

Go Green. Stop Global Warming.



Teamwork

Our initial design was using large driver wheel and castor wheels for the back wheels. The robot was wobbling as there was a mismatch in the speed between the 2 motors and the castor wheel was changing the direction back and forth. We as a team researched the issue and collected information and discussed to fix the issue. The idea we came up is to use skid steering by having a fixed wheels rather than a castor wheel. The robot was travelling straight but we had difficulty to make precise turns. We solved the turn issue by butting against the wall, light and touch sensor.



Project

Took a survey at local grocery store in the usage of the paper/plastic versus reusable bags. Talked to customers about the importance of using reusable bags. Took a survey on the usage of paper in school. Used the "morning message" at the school to inform the kids on the benefits of using both sides of the paper.



Robot Design

we used gears to drive our robot to make it run smooth and faster.

Our attachment design includes the Rack and Pinion mechanism to move the robot arm up and down. Touch sensors and Light sensors were used for precise movements

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Team 7556

GearFreeze

Honeoye Falls-Lima Middle School

Honeoye Falls, NY

Coach: Christopher Carosa



Mentors: Don Brown, Jennie Brown, Tom Jackson, Christine King, Jeremy King, Kurt Urlop, Mike Gushue

Robot's Name:



Team Members

Dawson Brown
Wyatt Brown
Peter Carosa
Garrett Coddington
Ian Jackson
Spenser King
Mackenzie Urlop

Where they are in the Pits: **Wright**

What Alliance they are part of: **Polar Bears**

Representing

Finger Lakes FIRST LEGO League Tournament



Fun Facts

We don't have a motto, we have more like a theme song. It's "We Like to Robot, Robot" (sung to the tune "We Like to Move It, Move It). We also made up new words to the tune of "The Twelve Days of Christmas" for our regional championship (it was right before Christmas). It's call "The Twelve Days of Lego League" and it was in the video we submitted. A couple of our younger team members are learning disabled, but they've been a great help nonetheless and really enjoy being part of the team. The Team Members helped mentor the elementary school club, which turned out to be good as we were able to recruit some replacements for the seventh graders. Everyone on the team really enjoys legos and likes being with the team. They are already planning for next year.



Project

While the research project appeared to imply the aspects of a negative climate, we wanted to emphasize the fact we really enjoy our climate, so we called it a "Goldilocks" climate (not too wet, not too dry, not too hot, not too cold...) It turns out, this perfect climate is not only perfect for us people, but also perfect for deer. This is a problem for our community as deer overpopulation has led to property damage and even loss of life. We learned this from state and town officials, wildlife experts, hunters, farmers and just regular people living in our town. We shared this with our school board, our town board, a Boy Scout Troop and Cub Scout Troop, among others. We learned a lot of people in our community are very concerned about deer overpopulation and want to do something about it, but it's a hard problem to solve.



Teamwork

GearFreeze learned a lot about teamwork - from planning and doing to coming together not just as a team, but a whole school community. When the team formed last Fall, it was mostly second graders. We worked hard with everybody chipping in in all areas but with everyone also specializing in specific areas. We didn't know if we were doing things right or not - we just did them. At the regional qualifiers, we were surprised to see our robot score the most points and happy to qualify for the regional championship. At the regional championship, we were disheartened, but not really upset, when we found out we didn't do well enough to win any trophies. But in a surprise announcement, the officials said, because we came so close to winning the overall trophy, we were asked to represent the region at the U.S. Open Championship. Everyone was so excited. Then we found out it was the same weekend as the annual seventh grade school field trip to Boston. Everyone's heart sank. But what happened next surprised us all. Members of the other two middle school teams and from the elementary school club volunteered to step in for our missing team members. Soon, both



Robot Design

The robot design has two unique factors: First, the build team put in a gear mechanism, which helps it go faster. Second, the programming team, while designing each mission as a separate module, combined them into one program (called "Chuck Norris") and got the build to to configure the robot so each module would start by touching a touch sensor. This allowed the build team to position the Mindstorm brick in a way that offered better balance for the robot without having to worry about pressing the buttons. The strategy squeezes a maximum amount high point value missions into the 2 1/2 minutes. It also minimizes the use of sensors because experiments proved they were unreliable in varying conditions. Sensors are only used where such variability is not critical. The robot's name is "Phil" but we don't really call it that. We're more likely to refer to "Chuck Norris" than "Phil."

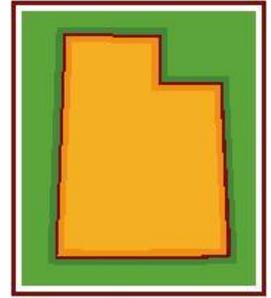
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Team 7577

Hippopotomonstrosesquipedaliophobia

Park City, UT

Coach: Amy Fehlberg



Mentors:

Robot's Name:

Team Members

Team photo not available

Where they are in the Pits: Wright

What Alliance they are part of: Rockets

Representing

Idaho FIRST LEGO League Championship



Fun Facts

Information unavailable



Teamwork

Information unavailable



Project

Information unavailable



Robot Design

Information unavailable

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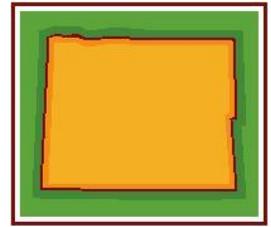
Team 7960

Mean Green Machines

Niobrara County School District

Lusk, WY

Coach: Roxanne Fish



Mentors:

Robot's Name: Sparky



Team Members

Zack Stephens
Kaitlin Gaukel
Quincy Webb
Dax Dockery
Zach Venable
Kylee Gaukel
Sam Brackett
Sabrina Canaday
Kaden Gaukel
William Fish

Where they are in the Pits: [Kettering](#)

What Alliance they are part of: [Tigers](#)

Representing

Wyoming FLL Championship Tournament



Fun Facts

"Working Together, We Can Achieve the Extraordinary"- Mean Green Machines team motto.

"Let's go Sparky, Let's go!! Go Green!!"- Team cheer. At our state competition, we were the only team that had our entire presentation memorized. We were also featured on our local news station, K2 News, where several team members and the coach were interviewed. To help with fundraising, one of our local restaurants allowed the team to wash dishes, bus tables, and fill drinks for three evenings. In exchange for our hours of hard work, the restaurant donated all tips received to the team. The town of Lusk, Wyoming is very supportive and we had a long line of people waiting to eat all three nights that we worked. Another unique fundraiser was our traveling toilets. We spray painted and decorated 3 donated toilets and asked some community members to place them in their yard. They would then pay the team to have the toilet moved to another yard. This was repeated numerous times. Each day a different community member would pay to have the toilet moved to a different yard. Our town LOVED it. Some couldn't wait to have the toilet in their yard! Did



Project

The team invited Lisa Shaw from the Niobrara Conservation District and Tommy Stephens, CEO for the Farm Service Agency to come in and present information about the effects of drought in Niobrara County. Kaitlin thought it was interesting that drought costs 6-8 billions dollars each year. Quincy learned how a jet engine works by using the internet. William wants to learn more about rain simulators and Dax thinks it's great that everyone is doing their part to try to conserve water.



Teamwork

Each team member came up with a single statement to create this list of the "Mean Green Machines-Teamwork Ten".

1. When you work together, things get done faster. -Dax
2. Everyone has an equal part. -Sam
3. You can achieve anything if you work together. - Sabrina
4. Everyone has a unique talent that can create great things. -William
5. Teamwork means working problems out. - Kaitlin
6. There is no I in Team. - Kylee
7. Everyone shares responsibility. - Zack
8. It is hard work with so many team members. -Kaden
9. Encourage each other. -Zach
10. Everyone shares the missions. - Quincy



Robot Design

Our robot "Sparky" looks kind of like Wall-E. It is a simple robot with many gadgets that do different things. Our window opener gadget is simple, but works really well. Our ice buoy attachment turned out cool. Sparky can run many different missions...and he doesn't get tired.

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Team 7985

Masterminds

Los Angeles, CA

Coach: Vince Mauro



Mentors:

Robot's Name: Robot #1: H.E.R.M – Helpful Engineered Robotic Machine - Robot #2: ATANK



Team Members

Aaron Fox
Karl Garrett
Nick Hoover
Kecheng Kao
Janessa Lin
Paul Mauro
Maddison Orosz
Will Pope
Lily Rongey

Where they are in the Pits: Carver

What Alliance they are part of: Penguins

Representing

Los Angeles Region FLL Championship Tournament



Fun Facts

- We visited the SPAWAR Navy Robotics laboratory
- We celebrated our 2nd place FLL achievement by going to the Nickel City arcade.
- We were able to compete at Lego Land, where we earned our way to Dayton.
- We ran several fund raisers to help get to Dayton, that included two bake sales, recycling projects, a Rubios Mexican restaurant fund raiser, a raffle, and writing to local businesses.
- One of our favorite parts of meeting for practice is eating the snacks our parents make and bring.



Teamwork

- We can't do many things without teamwork, and we win and lose as a team.
- As a team, we listed our strengths and things to improve on when working together, so we could work better together.
- We learned not to say mean things and to be respectful to each other.
- We learned that we should communicate with each other and get ideas from all team members.



Project

- We used the internet, especially Wikipedia, to research wild fires in the San Diego area. In the 2007 wild fires, half a million people were evacuated and 3,000 structures were destroyed by fires in our area.
- We learned that the causes of wild fires include drought, human carelessness, high winds on power lines, overgrown brush.
- We learned that some plants are fire resistant, because they hold a lot of moisture. However, there are not any fireproof plants.



Robot Design

- We have two robot designs, our original, and an improved version for the Dayton competition
- Our robots have a multi-tasking arm, which tests the levees, delivers the ice buoy, the polar bear, the skier, and the snow mobile in one trip
- For the Dayton competition, we designed a rake attachment, which picks up the ice core
- We designed some prototypes for the arrow alignment mission, but decided to concentrate on other missions instead.