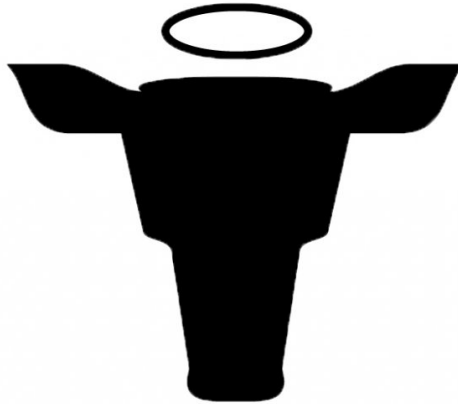


Team 1538 / The Holy Cows



Team Handbook 2014 - 2015

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About This Handbook

This handbook is written by the mentors of Team 1538 - The Holy Cows and talks about the team, what it does during the year, its history and rules & expectations for students & parents. It is important that all students and parents read and understand what is talked about in this handbook.

About Team 1538 / The Holy Cows

Team 1538 / The Holy Cows is a robotics team from the 'High Tech Village' in San Diego, CA.. The team pulls students from High Tech High, High Tech High International and High Tech High Media Arts. The mission of the team is:

- To grow an appreciation for Science, Technology, Engineering and Math in students
- To prepare students for the real world by introducing them to real world processes
- To generate excitement for STEM and STEM education in the greater community

FIRST Hall of Fame Team 1538 / The Holy Cows

The Holy Cows were honored to win the Chairman's Award at the 2013 FIRST Championship. With it, the team was inducted into the FIRST Hall of Fame. Of the 4,146 teams to have ever competed in the FIRST Robotics Competition, only 21 teams are members of the FIRST Hall of Fame.

A lot of people wonder what 1538 means. 1538 (*one, five, three, eight or fifteen, thirty-eight*) is the number that was assigned to our team in the Fall of 2004 by FIRST (For Inspiration and Recognition of Science and Technology). 'The Holy Cows' is the name our team settled on in the Fall of 2005. The story behind 'The Holy Cows' can be found in the team history section.

The Holy Cows meet year round to build a robot, compete, spread awareness of STEM, start new robotics teams as well as support other FIRST teams and programs.

FIRST

The Holy Cows primarily compete in the FIRST Robotics Competition (FRC).

The FIRST (For Inspiration and Recognition of Science and Technology) Robotics Competition is a robotics competition started by inventor Dean Kamen in 1992. The goal of the competition is to get students excited about STEM (Science, Technology, Engineering and Math) by working with adult mentors to build a 120 lb. robot to play a game. Each year a new game is designed by the FRC Game Design Committee (GDC). The new game is usually announced the first Saturday in January. From that point on teams have 6 weeks to strategize, prototype, design, build and test a robot that can play the game. At the end of the 6 weeks, teams must stop building their robots and prepare for their competitions.

Teams usually compete in 1-3 regional or district competitions around the world. At each competition, teams strive to qualify to attend the FIRST Robotics World Championship. At the championship, teams from around the world compete to find out who will be the FIRST Robotics Competition world champion.

However, FIRST is about more than building robots. FIRST is about creating a culture where science and technology are celebrated. The highest honor in FIRST is not winning a competition, but winning the Chairman's Award. The Chairman's Award is given to the team that best exemplifies the mission of FIRST. One Regional Chairman's Award is given out at each regional/district event. All of the Regional Chairman's Award winners compete at the World Championship for the Chairman's Award. When a team wins the Chairman's Award, they are inducted into the FIRST Hall of Fame. Teams that are in the Hall of Fame are given automatic entry to the World Championship every year. There are other awards teams can win as well. Those awards can be found in the Awards section of the FRC Game Manual.

In addition to FRC, FIRST also has programs targeted at different age groups. There's JFLL (Junior FIRST LEGO League) for 1st-3rd graders, FLL (FIRST LEGO League) for 4th-8th graders, and FTC for 9th-12th graders. The Holy Cows support teams and events in these other programs as a way to reach younger students and give them an arena to become excited about STEM.

VEX

Our team also competes in the VEX Robotics Competition (VRC). We use VRC as a training tool to get rookie members familiar with some of the concepts and skills they'll need during the FRC season.

Team History

Pre-2005 Season

Prior to the 2005 season, High Tech High competed in the BotBall robotics competition. The BotBall team was led by David Berggren and Ben Daley (Director of High Tech High at the time). After a lackluster performance at a BotBall competition in the Spring of 2004, the team decided that it was time for a new robotics competition.

In the April of 2004, Bill Berggren - a programs specialist for San Diego City Schools and father of David Berggren, attended the FIRST Robotics Competition World Championships with Team 1266 - The Devil Duckies, from Madison High School. Excited and knowing that the High Tech High robotics team was looking for a new competition, Bill told the team about what he had seen and it was agreed that in the Fall of 2004, High Tech High would register a FIRST team.

In September 2004, High Tech High registered with FIRST and was assigned number 1538. This would be their team number as long as they competed in FIRST. With registration out of the way, the team applied for the NASA Grant, a grant given to first and second year teams that covered the cost of registration.

2005 Season

The team still didn't have a team name going into kick-off on January 8th 2005. Shortly after kick-off, the team decided on a team name by going to a 'random band name generator' and picking the first name it spit out. The name: 'A Fistful of Motors'.

Shortly after build season, RedSea Marketing sponsored the team, giving them advice on how to market themselves as well as a discount on printed materials. Bill Berggren, who suggested to the old BotBall team that they do FIRST, owned a small metal fabrication company called BlueChip Machine and Fabrication which would become a key sponsor for the team, helping the team manufacture many of the parts on their robot.

The team built a robot with a kit-bot chassis that could score reasonably well for a rookie team. The team attended just one regional, the Las Vegas Regional where they seeded 18th and were picked by the 6th seeded alliance consisting of teams 60 and 496. The alliance was eliminated in the quarterfinals, but making it to the eliminations was enough to help push the team to come back stronger next year.

Founding Sponsors:

High Tech High, NASA, BlueChip Machine & Fabrication, RedSea Marketing

Founding Students:

Amanda Canyon (Class of 2008)

Alex Dodge (Class of 2006)

*David Giamanco (Class of 2006)

Iain Hartley (Class of 2006)

*Jon Jack (Class of 2006)

*Zeke Koziol (Class of 2006)

*Mike Kurland (Class of 2006)

Evan Morikowa (Class of 2006)

*Chris Richardson (Class of 2006)

Jonathan Zander (Class of 2006)

*=Members of BotBall Team

Mentors

David Berggren

Bill Berggren

Leadership

Mike Kurland (Director of Engineering, 11th Grade)

Jon Jack (Director of PR, 11th Grade)

Iain Hartley (Manager of Electrical, 11th Grade)

Alex Dodge (Manager of Programming, 11th Grade)

Jon Zander (Manager of Mechanical Design, 11th Grade)

Driveteam

Chris Richardson (Operator, 11th Grade)

Iain Hartley (Driver, 11th Grade)

Evan Morikowa (Coach, 11th Grade)

Mike Kurland (Human Player, 11th Grade)

Event Results

2005 Las Vegas Regional - Quarterfinalists

2006 Season

After returning from the 2005 Las Vegas Regional, the team decided that 'A Fistful of Motors' wasn't a great name, it would be difficult to brand/market so they decided to pick another name. Early in the Fall of 2005 the team was brainstorming names and had a whiteboard full of names. The names ranged from 'Rasta Robotics' to 'Free and Reduced Lunch'. When Brett Peterson (then a humanities teacher) walked by the room, he shouted 'Holy Cow, that's a lot of names!' and 'The Holy Cows' was put on the board. The team eventually settled on 'The Holy Cows' as their name and began the process of rebranding the team.

2006 was a major year in the development of The Holy Cows. The team began building a

sponsor base that would set them up for several years and began building relationships in the community and recruiting new team members. The team grew from just 10 members in 2005 to nearly 20 in 2006. The team also raised enough money to afford their first trip to championships.

Their robot that year was average. The team made their first attempt at a practice robot, but it turned out to just be a spare shooter assembly. At the Las Vegas Regional they were awarded the Imagery Award for their cohesive team image. They were once again Quarterfinalists. The Holy Cows attended the championships for the first time after receiving a 'lottery' spot. At the championships that year, they seeded 13th, just missing the eliminations and becoming an alternate on Einstein.

However, many of the key founding students graduated in June of 2006, turning the team over to new students.

Sponsors:

High Tech High, NASA, BlueChip Machine & Fabrication, RedSea Marketing, San Diego County Sheriff's Department, Linton Foundation, Point Loma Community Bank, Berggren Families

Students: 18

Mentors:

David Berggren
Bill Berggren

Leadership

Mike Kurland (Director of Engineering, 12th Grade)
Jon Jack (Director of PR, 12th Grade)
Iain Hartley (Manager of Electrical, 12th Grade)
Alex Dodge (Manager of Programming, 12th Grade)
Jon Zander (Manager of Mechanical Design, 12th Grade)

Driveteam:

Andrew Barna (Operator, 12th Grade)
Iain Hartley (Driver, 12th Grade)
Jon Jack / David Berggren (Coach, 12th Grade / Mentor)
Brittany Parker (Human Player, 10th Grade)

Event Results:

2006 Las Vegas Regional - Quarterfinalists & Imagery Award
2006 Championships - Archimedes Division, 13th Seed

2007 Season

The 2007 season was a season of change and continued growth. Many of the key founding members of the team graduated in June of 2006 and this would be the first transition in leadership. During the Fall of 2006, the team continued building partnerships in the community such as the one with Albert Einstein Academy and the San Diego FTC Championship Tournament. Jon Jack and Chris Richardson, two of the team's alumnus from the Class of 2006 came back to mentor the team, making the leadership transition easier on the team.

The team once again built an average robot, but this was the first year the team began using

powdercoating on their robots. They also built a practice robot which was a clone of the robot they shipped that could be used to train drivers. Unfortunately the practice robot was built too late in the competition season to be of much help. The Holy Cows started their two year collaboration with team 1572 from Kearny High School. The two teams collaborated on drivetrain design and helped make parts for each other.

2007 was also the inaugural year for the San Diego Regional. Having a regional at home allowed the team to travel to a second regional for the first time in team history. At the San Diego Regional, they won the Delphi Driving Tomorrow's Technology Award and made it to the semifinals for the first time in team history. At the Las Vegas Regional the team won their second Imagery Award and pulled off a stunning upset in the quarterfinals, only to be knocked out in the semifinals by the eventual tournament champions.

Sponsors:

High Tech High, NASA, BlueChip Machine & Fabrication, RedSea Marketing, Qualcomm, San Diego County Sheriff's Department, Miller Electric, RW Little Co.

Students: 23

Mentors:

David Berggren
Bill Berggren
Jon Jack
Chris Richardson

Leadership

Brittany Parker (Director of Engineering, 11th Grade)
Cheyenne Manske (Director of PR, 11th Grade)
Amanda Canyon (Manager of Electrical & Programming, 11th Grade)
Dan Brownlee (Manager of Mechanical Design, 11th Grade)

Driveteam:

Greg Stiasny (Operator, 11th Grade)
Jason Carrier (Driver, 11th Grade)
David Berggren (Coach, Mentor)
Will Boshell (Human Player, 11th Grade)

Event Results:

2007 San Diego Regional - Semifinalist / Delphi's Driving Tomorrow's Technology
2007 Las Vegas Regional - Semifinalist / Imagery Award
2007 Fall Classic - Finalist

2008 Season

With many returning students from 2007, The Holy Cows were prepared to do even better in 2008. Much of their work with other FIRST teams, within the community and in their school had made them a strong contender for the Chairman's Award at the San Diego Regional. With all of the team leadership returning, there were no changes made.

Their robot that year was a little better than their 2007 robot, but the team still hadn't grasped two key concepts in robot design: 1) building to the strengths of your resources and 2) simplicity. At the San Diego Regional, The Holy Cows lost out on the Chairman's Award, but made it to the semifinals for the second year in a row and won their third Imagery Award. The 2008 San Diego Regional was also special because Bill Berggren won

Volunteer of the Year and David Berggren won the Woodie Flowers Award. At the Los Angeles Regional, the team was eliminated in the Quarterfinals by the eventual regional champion, but the team won the Xerox Creativity Award and the Engineering Inspiration Award. At the championships, the team finished 43rd on the Newton Division.

Once again, much of the team's leadership was graduating, making the second major leadership transition in three years.

Sponsors:

High Tech High, NASA, BlueChip Machine & Fabrication, RedSea Marketing, Qualcomm, San Diego County Sheriff's Department, Miller Electric, Berggren Families

Students: 25

Mentors:

David Berggren
Bill Berggren
Jon Jack
Chris Richardson

Leadership

Brittany Parker (Director of Engineering, 12th Grade)
Cherene Manske (Director of PR, 12th Grade)
Amanda Canyon (Manager of Electrical, 12th Grade)
Jason Carrier (Manager of Programming, 12th Grade)
Dan Brownlee (Manager of Mechanical Design, 12th Grade)

Driveteam:

Greg Stiasny (Operator, 12th Grade)
Jason Carrier (Driver, 12th Grade)
Jon Jack (Coach, Mentor)
Jessica Raptis (Human Player, 12th Grade)

Event Results:

2008 San Diego Regional - Semifinalist / Imagery Award / Woodie Flowers Award (David Berggren) / Volunteer of the Year (Bill Berggren)
2008 Las Vegas Regional - Quarterfinalist/ Xerox Creativity/ Engineering Inspiration
2008 Championships - 43rd Newton Division
2008 Fall Classic - 2nd Seed Alliance Captain / Semifinalist

2009 Season

The 2009 season started with high hopes. The team once again was looking like a strong candidate for the Regional Chairman's Award and they had a group of promising underclassman join the team in the Fall of 2008.

The team set off to make a simple robot, and they did just that. The robot quickly earned a reputation as an atom bomb because it could score 40+ points within seconds. At the San Diego Regional, they were picked by the 2nd seeded alliance captain of 1388 and picked 1348 in the second round. Together they advanced to the finals for the first time in team history. Jon Jack, one of the team's founding students, won the 2009 San Diego Regional Woodie Flowers Award. At the time, Jon was the youngest recipient of this award. The team also won their first Regional Chairman's Award. A few weeks later at the 2009 Las Vegas

Regional their robot seeded 7th, but they were picked by the #1 seed - team 254. They advanced to the semifinals but were eliminated in the 3rd semifinal match by two points..

At the world championships, The Holy Cows were poised to make their first trip to the elimination rounds at the championship. After losing a couple close qualification matches, they were out of the top 8. However they were picked by the 2nd seed - team 1503. Together with team 1649 they advanced to the semifinals but once against lost by just a few points.

That summer The Holy Cows traveled to the Indiana Robotics Invitational - an off-season invitational tournament which is regarded as FIRST's all-star game. They were picked by a strong 8th seeded alliance consisting of teams 2775, 2056 and 148. However, they had to face the #1 seed, featuring team 111 - the 2009 World Champion. Even though the team didn't win the competition, they did receive the Mentor of the Year Award and Imagery and Design Award.

In the fall of 2009, the team won the 2009 Fall Classic, an off-season event in the Los Angeles area. The win was their first ever competition win.

Sponsors:

High Tech High, BlueChip Machine & Fabrication, Qualcomm, BAE Systems, Gnostec, SRT-Nypro, Berggren Families, RedSea Marketing, San Diego County Sheriff's Department, Miller Electric

Students: 30

Mentors:

David Berggren
Bill Berggren
Jon Jack
Mark Raptis

Leadership

Jessica Raptis (Director of Engineering, 12th Grade)
RJ Sheperd (Director of PR, 11th Grade)
JP Montello (Manager of Mechanical Design, 12th Grade)
Justin Ripley (Manager of Electrical, 11th Grade)
Jeb Brooks (Manager of Programming, 11th Grade)
Katy Anderson (Manager of Finance, 11th Grade)
Olivia Perry (Executive Secretary, 11th Grade)

Driveteam:

Jeb Brooks (Operator, 11th Grade)
RJ Sheperd (Driver, 11th Grade)
Jon Jack (Coach, Mentor)
Ethan Thompson (Human Player, 12th Grade)

Event Results:

2009 San Diego Regional - Finalist / Woodie Flowers Award / Chairman's Award
2009 Las Vegas Regional - Semifinalist / Imagery Award
2009 Championships - Semifinalist (Archimedes Division)
2009 IRI - Quarterfinalists / Mentor of the Year (David Berggren) / Imagery and Design

2009 Fall Classic - Champions / Judges Award

2010 Season

With the success of the 2009 season, Team 1538 went into 2010 with even higher expectations. The team continued working on starting new events to spread STEM appreciation. In the fall of 2009, they held the first annual San Diego Fall Workshops. The fall workshops were modeled after the ones held in LA, where presenters from around the state come in to give workshops to teams on everything from robot design to programming to awards and event how to start a team. The Holy Cows also started helping to run FLL tournaments around Southern California - first helping a fledgling tournament in Santa Ana and then sending most of the team to be judges, referees, score keepers and field reseters for the Southern California FLL State Championship tournament.

The game in 2010 was a difficult one, introducing many new challenges to teams. The Holy Cows' robot was a case study in iteration in 2010. In San Diego they seeded 5th, picking teams 1388 and 668 and together they reached the semifinals. The team received the Engineering Excellence Award and won their second straight Chairmans Award. The San Diego Regional did expose many problems with their robot. For one, the robot couldn't hold on to balls very well. The other problem was that their drivetrain was not strong enough to withstand all the game challenges. In the quarterfinals they broke a drive axle and had to replace it between matches.

At the Utah Regional The Holy Cows replaced their drivetrain gearboxes, making the robot stronger. The team quickly shot ahead in the rankings and by the end of the day Friday had the #1 seed locked up. By the end of qualification rounds they were the #1 seed and picked teams 753 and 3241. After cruising undefeated into the finals, both The Holy Cows' and 753's robots began running into technical problems. The team lost the first final, won the second final, tied the third final and barely lost the 4th final. In addition to being finalist, the team won Engineering Excellence and the Coopertition Award.

At the world championships, The Holy Cows were placed in a division with several perennial powerhouses. The team changed their ball grabber, swapping it for a ball grabber modeled after 968/254's ball grabber. They ended up being one of the top scoring robots in their division and were picked by the 2nd seed - team 111. They were eventually eliminated in the semifinals for the second straight year.

Again, The Holy Cows received an invitation to the Indiana Robotics Invitational. They won most of their matches and ended up on the 7th seed alliance and had to play the powerhouse alliance of 1086, 1114, 2056 and 3138. Unfortunately The Holy Cows were eliminated in the quarterfinals, bringing an end to their 2010 season.

Sponsors:

High Tech High, Nordson Asymtek, BlueChip Machine & Fabrication, Qualcomm, BAE Systems, Gnostec, SRT-Nypro, Berggren Families, RedSea Marketing, San Diego County Sheriff's Department, Miller Electric

Students: 45

Mentors:

David Berggren

Bill Berggren

Jon Jack

Leadership

RJ Sheperd (Director of Engineering, 12th Grade)

Olivia Perry (Director of PR, 12th Grade)

Julien V-W Long (Manager of Mechanical Design, 12th Grade)

Jeb Brooks (Manager of Electrical & Software, 12th Grade)

Cameron Parvini (Manager of Scouting, 12th Grade)

Katy Anderson (Manager of Finance, 12th Grade)

Driveteam:

Jeremy Howe (Operator, 9th Grade)

Jeb Brooks (SD & Champs) / Chris Lutze (Utah & IRI) (Driver, 12th / 11th Grade)

Jon Jack (Coach, Mentor)

Patrick Barna (Human Player, 12th Grade)

Event Results:

2010 San Diego Regional - Semifinalist / Engineering Excellence / Chairman's Award

2010 Utah Regional - Finalist / Engineering Excellence / Coopertition

2010 Championships - Semifinalist (Curie Division)

2010 IRI - Quarterfinalists

2011 Season

Often times seasons are made and broken by luck. During the 2011 season it seemed like The Holy Cows got all the lucky breaks. The team looked to be strong contenders for a third consecutive Regional Chairman's Award despite being in the middle of another major leadership change. After many years of helping run FLL tournaments, The Holy Cows hosted their own qualifying tournament at High Tech High for the first time. In order to train younger students, they also started two VEX Robotics Competition teams (1538B and 1538W).

At the VEX competition that year, 1538B was the 8th seeded alliance captain. Together with their alliance partners, they beat the #1 seeded alliance in the Quarterfinals, but were eliminated in two close semifinal matches.

The robot FRC robot in 2011 was simple, easy to maintain and robust. At the San Diego Regional, the team placed 10th after losing two close match due to minibot problems. After a quarterfinal exit, the team won their 3rd straight Chairman's Award.

After San Diego, the team spent most of their time fine tuning software and improving their minibot. The hard work paid off at the 2011 Silicon Valley Regional. The team went 9-1 on their way to claiming the 2nd seed. During alliance selections they were picked by the #1 seed - team 254. Together with 751 they went undefeated through the elimination rounds and The Holy Cows won their first regional ever.

Before the Championships The Holy Cows knew the secret to success would be a fast minibot. After remaking their minibot for the 3rd time they felt they had a championship quality minibot. With a little luck in the match schedule, The Holy Cows went 8-2 on the Newton Division and claimed the #5 seed. They were picked by the #4 seed - team 78 and picked 494. After knocking out the powerhouse alliance of 16, 27 and 842, The Holy Cows

lost a close semifinal. Shortly after being eliminated, The Holy Cows won the Motorola Quality Award, their first championship award.

For the third straight year, The Holy Cows were invited to the Indiana Robotics Invitational. They were seeded low after a brutal qualification schedule, but was picked by the 6th seed - team 11. Together they picked teams 2337 and 1519 and once again lost a close semifinal. Jon Jack also won Mentor of the Year.

Sponsors:

High Tech High, Nordson Asymtek, BlueChip Machine & Fabrication, Qualcomm, BAE Systems, Gnostec, SRT-Nypro, Berggren Families, Vivid-Hosting, RedSea Marketing, San Diego County Sheriff's Department, Miller Electric

Students: 55

Mentors:

David Berggren
Bill Berggren
Jon Jack
Kiet Chau (remote mentor)

Leadership

Chris Lutze (Director of Engineering, 12th Grade)
Stephen Whiting (Director of PR, 12th Grade)
Gabi Tukeman (Manager of Mechanical Design, 12th Grade)
Virgillo Ilegan (Manager of Electrical & Software, 12th Grade)
Cameron Dechant (Manager of Scouting, 11th Grade)
Kristin Olson (Manager of Chairmans, 11th Grade)
Gabby Parker (Manager of Outreach, 10th Grade)

Driveteam:

Jeremy Howe (Operator, 10th Grade)
Ethan Chan (Driver, 10th Grade)
Jon Jack (Coach, Mentor)
Chris Lutze / Wyatt Schulz (Human Player, 12th /10th Grade)

Event Results:

2011 San Diego Regional - Quarterfinalist / Chairman's Award
2011 Silicon Valley Regional - Champions / Motorola Quality
2011 Championships - Semifinalist (Newton Division) / Motorola Quality
2011 IRI - Semifinalist / Mentor of the Year
2011 Fall Classic - Champions / Highest Quality Robot / Peer Favorite Robot
2011 Battle at the Border - Champions / Highest Quality Robot

2012 Season

Coming off a strong 2011 season, the team had high expectations for the 2012 season. The team started off strong winning both of their Fall off-season tournaments with their 2011 robot. In December of 2011, Kiet Chau signed on as a full time mentor.

The 2012 game was brutal and as a result, build season was also hard. The team finished both robots before the stop build date, but had no time to drive either robot prior to stop build. Without being able to run the robot before stop build a lot of modifications were made before the San Diego Regional.

Going into the San Diego Regional the team was once again considered a top contender for the Regional Chairman's Award and were considered favorites to win the regional. However, with many systems on the robot unproven and unreliable, the team slipped in the rankings. They were picked by the #2 alliance, but lost in the quarterfinals. The team did win their 4th consecutive Regional Chairman's Award which qualified them for the world championship.

Between the San Diego and Silicon Valley Regional the team made two changes to their dive team. Jon Jack stepped back as field coach, letting Kiet Chau take over. In addition, Henry Gruenbaum replaced Ethan Chan as driver. The team did perform better at the Silicon Valley Regional finishing as the #3 alliance captain, but was eliminated in the semifinals.

At the Championship, the robot wasn't able to stand out in a field of 100 teams and the team was not picked for the elimination rounds.

Sponsors:

High Tech High, Nordson Asymtek, BlueChip Machine & Fabrication, Qualcomm, Berggren Families, Vivid-Hosting, RedSea Marketing, San Diego County Sheriff's Department, Miller Electric, KTC Research, Northrop Grumman, Precision Waterjet & Laser, A-to-Z Metal Finishing,

Students: 55

Mentors:

David Berggren
Bill Berggren
Jon Jack
Kiet Chau
Cathy Schulz
Helen Li

Leadership

Henry Gruenbaum (Director of Engineering, 12th Grade)
Kristin Olson (Director of PR, 12th Grade)
Cameron Dechant (Manager of Mechanical Design, 12th Grade)
Connor Worley (Manager of Electrical & Software, 10th Grade)
Ambar Avila (Manager of Scouting, 11th Grade)
Morgan Stinson (Manager of Chairmans, 12th Grade)
Jo Rubio (Manager of Outreach, 10th Grade)
Carmel Fiscko (Manager of E-Store, 11th Grade)

Driveteam:

Jeremy Howe (Operator, 11th Grade)
Ethan Chan / Henry Gruenbaum (Driver, 11th Grade / 12th Grade)
Jon Jack / Kiet Chau (Coach, Mentor / Mentor)
Wyatt Schulz (Human Player, 11th Grade)

Event Results:

2012 San Diego Regional - Quarterfinalist / Woodie Flowers Award / Chairman's Award
2012 Silicon Valley Regional - Semifinalist / Imagery Award
2012 Championships - 23rd Seed (Galileo Division)
2012 IRI - Quarterfinalist

2012 Battle at the Border - Finalists / Highest Quality Robot
2012 Fall Classic - Finalists / Judges Award

2013 Season

The 2013 season was the senior season for many long time team members. The team started off the year finishing as finalists at both Battle at the Border and the Fall Classic. The team worked hard throughout the fall, setting team records for community service hours, new team members and fundraising. In addition, the team helped create the new San Diego Robotics Center with Team 4160 at Mission Bay High School. The SDRC was created to house a ¾ FRC field that Southern California teams could use to practice.

The 2013 game was another difficult game, with many strategies and mechanisms needed to be successful. The team built a simple robot, which used mechanisms for multiple purposes (ex: using an arm for both hanging and shooter tilt control). The robot was built to be a dominant autonomous scorer since autonomous points were important to a team's qualification ranking.

The team started off ranking 5th at the San Diego Regional, having tied for 3rd most autonomous points at the event. They were picked by the #2 seed, Team 399 - Eagle Robotics. The alliance made it through the quarterfinals, but were eliminated in the semifinals when a metal shaving got stuck in their electronics and caused the robot to disable. The team ended up winning their 5th consecutive Regionals Chairman's Award, which punched their ticket to the championship.

Next, the team traveled to San Bernadino for the inaugural Inland Empire Regional. The team finished 10-1-0 and #1 seed. With the first pick in alliance selections, they picked Team 2485 - W.A.R. Lords from the Francis Parker School. Team 2485 had a full court shooter, which complimented the floor pick up on Team 1538's robot. With the last pick, the team picked Kiet Chau's former team, Team 968 - RAWC. During eliminations RAWC delivered stiff defense, blocking an juking blockers and allowing Team 2485's robot to shoot discs down field. The alliance swept through the eliminations, winning the 2013 Inland Empire Regional. Since the team had already qualified for the Championship, their championship spot was given to the captain of the finalist alliance, Team 3476 - Code Orange.

Going into the 2013 Championship, there was a lot of momentum being built. In addition to having one of the best robots in all of FRC, many in the FRC community considered Team 1538 a top contender for the Chairman's Award. When division assignments were announced, Team 1538 was placed in a division with Team 3476, the team who they beat in the finals of the Inland Empire Regional. The team again seeded 1st after going 8-0-0 in qualifications. With the first pick of alliance selections the team picked Team 1986 because of their complementary auto mode and level 3 climber. After sweeping through the first two elimination rounds, the team again had to face team 3476 in the finals. Team 1538's alliance lost in two matches, ending their 2013 competition season.

Before the championship elimination matches began on Einstein, FIRST announced the winner of the 2013 Chairman's Award, with Team 1538 being announced as the winner and the 21st team inducted into the FIRST Hall of Fame.

Sponsors:

High Tech High, Nordson Asymtek, BlueChip Machine & Fabrication, Qualcomm, Micron Technologies, Berggren Families, Vivid-Hosting, RedSea Marketing, San Diego County Sheriff's Department, Miller Electric, KTC Research, Northrop Grumman, Waterjet West, A-to-Z Metal Finishing, Vinatech Engineering, Quality Powder Coat, Tukeman Family, Fisco Family, Chan Family

Students: 55

Mentors:

David Berggren
Bill Berggren
Rebecca Berggren
Jon Jack
Kiet Chau
Cathy Schulz
Helen Li
Rene Haro

Leadership

Ethan Chan (Director of Engineering, 12th Grade)
Kaithlyn Abulencia (Director of PR, 12th Grade)
Jeremy Howe (Manager of Mechanical Design, 12th Grade)
Connor Worley (Manager of Electrical & Software, 11th Grade)
Carlo Nepomuceno (Manager of Scouting, 12th Grade)
Carmel Fisco (Manager of Awards, 12th Grade)
Jaclyn Calkins (Manager of Outreach, 12th Grade)
Ambar Avila (Manager of Fundraising, 12th Grade)

Driveteam:

Ambar Avila (Operator, 12th Grade)
Ethan Chan (Driver, 12th Grade)
Kiet Chau (Coach, Mentor)
Laurence "LT" Tabalon (Human Player, 12th Grade)

Event Results:

2013 San Diego Regional - Semifinalist / Engineering Excellence / Regional Chairman's Award
2013 Inland Empire Regional - Winner / Quality Award
2013 Championships - 1st Seed & Finalist (Newton Division), **Chairman's Award**

2014 Season

Sponsors:

High Tech High, Nordson Asymtek, BlueChip Machine & Fabrication, Qualcomm, Micron Technologies, Berggren Families, Vivid-Hosting, RedSea Marketing, San Diego County Sheriff's Department, Terra Nova Technology, KTC Research, Northrop Grumman, Anocote Metal Finishing, Vinatech Engineering, Quality Powder Coat, Chan Family

Students: 80

Mentors:

David Berggren
Bill Berggren
Rebecca Berggren

Jon Jack
Kiet Chau
Cathy Schulz
Helen Li
Rene Haro

Leadership

Danielle Patriarcia (Director of Engineering, 12th Grade)
Nathan Rozenberg (Director of PR, 12th Grade)
Torstein Dahle (Manager of Mechanical Design, 12th Grade)
Connor Worley (Manager of Electrical & Software, 11th Grade)
Andres "Andy" Rodriguez (Manager of Scouting, 12th Grade)
Nick Olamendi-Smith (Manager of Community Development, 11th Grade)
Elizabeth Gomes (Manager of Fundraising, 11th Grade)
Daniel Moradpour (Manager of Digital Media, 11th Grade)

Driveteam:

Mario Avila (Operator, 9th Grade)
Connor Worley (Driver, 12th Grade)
Kiet Chau (Coach, Mentor)
Auggie Sonnenberg (Human Player, 9thth Grade)

Event Results:

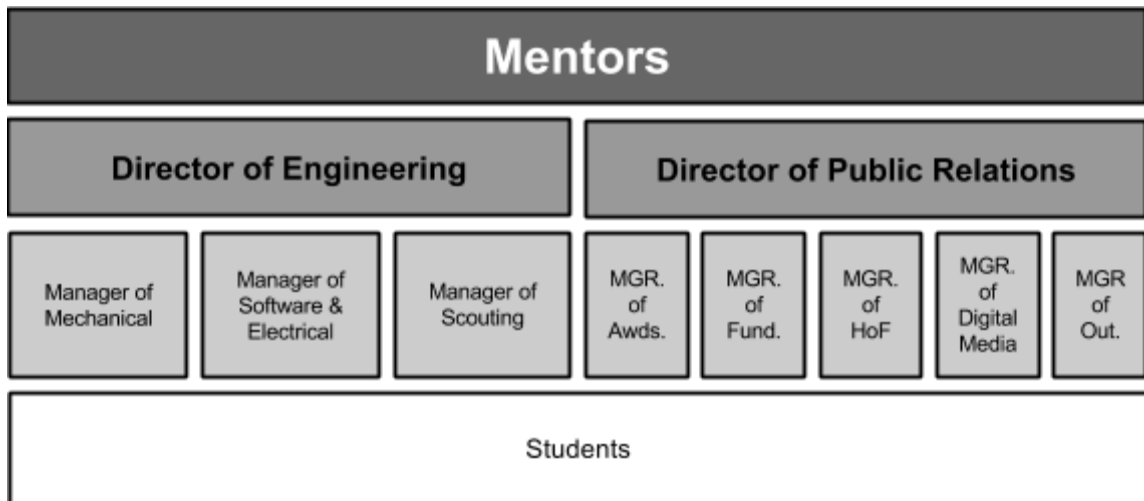
2014 San Diego Regional - Semifinalist / Innovation in Control
2014 Las Vegas Regional - Semifinalist / Quality Award
2014 Championship - Quarterfinalists (Archimedes Division) / Media & Technology Award

Achievements & Event Results

2005 Las Vegas Regional - Quarterfinalists
2005 Battle at the Border - Semifinalists
2006 Las Vegas Regional - Quarterfinalists & Imagery Award
2006 Championship - 13th Seed, Archimedes Division
2007 San Diego Regional - Semifinalists & Driving Tomorrow's Technology
2007 Las Vegas Regional - Semifinalists & Imagery Award
2007 Fall Classic - Finalists
2008 San Diego Regional - Semifinalists, Woodie Flowers, Volunteer of the Year & Imagery Award
2008 Los Angeles Regional - Quarterfinalists, Xerox Creativity & Engineering Inspiration
2008 Championship - 43rd seed Newton Division
2008 Fall Classic - Semifinalists & Highest Scoring Robot
2009 San Diego Regional - Finalists, Woodie Flowers & Chairman's Award
2009 Las Vegas Regional - Semifinalists, Imagery Award
2009 Championship - Semifinalists (Archimedes Division)
2009 Indiana Robotics Invitational - Quarterfinalists, Imagery and Design & Mentor of the Year
2009 Fall Classic - Champions & Judges Award
2010 San Diego Regional - Semifinalists, Engineering Excellence & Chairman's Award
2010 Utah Regional - Finalists, Engineering Excellence & Cooperation
2010 Championships - Semifinalists (Curie Division)
2010 Indiana Robotics Invitational - Quarterfinalists
2011 San Diego Regional - Quarterfinalists & Chairman's Award

2011 Silicon Valley Regional - Champions & Motorola Quality
 2011 Championships - Semifinalists (Newton Division) & Motorola Quality
 2011 Indiana Robotics Invitational - Semifinalists & Mentor of the Year
 2011 Fall Classic - Champions, Peer Favorite Robot & Highest Quality Robot
 2011 Battle at the Border - Champions & Highest Quality Robot
 2012 San Diego Regional - Chairman's Award, Woodie Flowers Award & Quarterfinalists
 2012 Silicon Valley Regional - Imagery Award & Semifinalists
 2012 World Championship - 23rd Seed, Galileo Division
 2012 IRI - Quarterfinalist
 2012 Battle at the Border - Finalist, Highest Quality Robot
 2012 Fall Classic - Finalist, Judges Award
 2013 San Diego Regional - Semifinalists, Engineering Excellence, Regional Chairman's Award
 2013 Inland Empire Regional - Champions, Motorola Quality Award
 2013 World Championship - 1st Seed, Newton Division (8-0-0), Finalist, **Chairman's Award**
 2014 San Diego Regional - Semifinalists, Innovation in Control
 2014 Las Vegas Regional - Semifinalists, Quality Award
 2014 World Championship - Archimedes Quarterfinalists, Media & Technology Award

Team Structure



Mentors

Mentors are adults (professionals, teachers, alumnus, parents) who *volunteer* their time to run the team and teach the students. Mentors work with the student leaders to guide and direct the team.

Engineering Department

Director of Engineering

This is the student that is in charge of all engineering and game-related tasks on the team.

Manager of Mechanical

This is the student that is in charge of all mechanical related tasks on the

team.

Manager of Software & Electrical

This is the student that is in charge of all software and electronics.

Manager of Scouting

This is the student that is in charge of scouting teams before and during competitions.

Public Relations Department

Director of Public Relations

This is the student that is in charge of all non-engineering tasks on the team.

Manager of Awards

This is the student in charge of all the team's award submissions.

Manager of Outreach

This is the student in charge of organizing the team's outreach efforts

Manager of Hall of Fame

This is the students in charge of managing the team's Hall of Fame commitments.

Manager of Fundraising

This is the student that is in charge of fundraising the money needed to run the team.

Manager of Digital Media

This is the student that is in charge of organizing photos and video, documenting what the team does and managing our social media accounts.

Mentors

Becca Berggren - PR/Marketing

Bill Berggren - Fabrication

Cathy Schulz - PR/Marketing/Outreach/Awards

David Berggren - Fabrication/Management

Helen Li - Scouting

Jon Jack - Lead Mentor

Kiet Chau - Mechanical Design/Electrical/Software

Rene Haro - Website / Design / Scouting & Strategy

Student Leadership

Director of Engineering - Ben Younes (Senior)

Manager of Mechanical Design - Cameron Paschalydis (Junior)

Manager of Software and Electrical - Rosie Viirre (Junior)

Manager of Scouting - Maddie Menke (Senior)

Director of PR - Elizabeth Gomes (Senior)
Manager of Awards - Conrad Ronk (Senior)
Manager of Fundraising - Nick Olamendi-Smith (Senior)
Hall of Fame Manager - Rachel Dunkin (Junior)
Manager of Outreach - Daniel Moradpour (Senior)
Manager of Digital Media - Ben Staley (Senior)

Sponsors

High Tech High (2005) - Our school
BlueChip Machine & Fabrication (2005) - Provides financial support, welding and machining
The Berggren Family (2005) - Provides financial support and mentors
San Diego County Sheriff's Department Printshop (2005) - Print materials
Red Sea Marketing (2005) - Team apparel
Qualcomm (2007) - Provides financial support, mentors and machining
The Tukeman Family (2009) - Provides financial support
Nordson Asymtek (2010) - Provides financial support
SAIC (2011) - Provides financial support and mentors
Vivid-Hosting (2011) - Provides web hosting and IT support
KTC Research (2012) - Sensor Design
Northrop Gruman (2012) - Financial Support
Quality Powder Coat (2012) - Powder Coating
Waterjet West (2013) - Provides Waterjet Services
Vinatech Engineering (2013) - Provides Waterjet Services
Anocote Metal Finishing (2014) - Provides Anodizing Services

Alumni

Below are a list of some of our team alumni and some of the notable things they have done since graduating from the team.

David Giamanco (Class of 2006)
Graduated from CalPoly San Louis Obispo (Computer Science)
Works as a software engineer for Zynga

Alex Chee (Class of 2006)
Graduated from Stanford (Symbolic Systems)
Worked as Director of Product for LOLApps and Co-Founder of Little.inc

Evan Morikowa (Class of 2006)
Graduated from Olin (User Experience Design)
Worked at Kiva and Google, Co-Founder of Aight Learning

Zeke Koziol (Class of 2006)
Graduated from Harvey Mudd
Works for Yelp!

Jon Jack (Class of 2006)
2009 San Diego Regional Woodie Flowers Award winner

Dan Gorelik (Class of 2008)
Graduated from Florida Institute of Technology
Worked for Motorola Solutions
Currently works for Harris Corp.

Amanda Canyon (Class of 2008)

Graduated from UC Berkley

Helped started a smaller version of FIRST that paired inner city kids from Oakland with Berkley engineering students.

Worked as a software developer for Apartment List

Currently works as a developer for MixPanel

Brittany Parker (Class of 2008)

Graduated from Florida Institute of Technology

Works for G.E Electric Boat

Jessica Raptis (Class of 2009)

Graduated from California Maritime Institute

Works for BAE Shipyard, San Francisco

Students

Being a student on The Holy Cows is a fun and rewarding experience. Students are not expected to know everything about making a robot, but are expected to be hardworking and committed to the team. A rule of thumb for every student to follow is:

“You will get out of this team what you put into it”

If you apply yourself and invest the time and effort into the team, it will be one of the most rewarding experiences of your life. On the other hand, if you don't apply yourself and show no commitment to the team, you're not going to get much out of it.

The Holy Cows grew from a struggling rookie team to one of the best programs in the world because of the hard work and dedication of past and present students, mentors and parents. As a result, students who are hardworking and committed will be rewarded over students who have been on the team longer. For example, a freshman who joins the team and shows up to events, works hard during build season and regularly shows up to practice will be selected for a key position over a senior who rarely shows up to events, leaves early every night during build season and never comes to practice.

As a student on The Holy Cows, you are representing a FIRST Hall of Fame team. As such, your actions not only reflect on our team, they reflect on the other teams in the Hall of Fame. When you are representing the team, you are expected to be respectful and professional at all times. YOU are expected to represent the ideals of the FIRST robotics competition.

This section covers the rules and expectations for students, travel requirements and the types of meetings our team holds throughout the year. Failure to comply with these rules will result in you being asked to leave the team.

Student Rules & Expectations

General

- Must be a student at High Tech High, High Tech High International, High Tech High Media Arts.
- If a student is at High Tech High, they must be enrolled in the FIRST Robotics X-Block and Intersession. If there is a reason a student doesn't want to or cannot enroll in the X-Block and Intersession, they need to approve it with a team mentor.
- Students are expected to have at least a “C” in all of their classes. If a student is failing any class, they will be suspended from team activities until the grade is brought up.
- Students cannot use robotics as an excuse for why they're failing a class, missing homework or needing an extension on classwork. If you have homework to do, you're more than welcome to do it at robotics. If you will not be able to complete a task or project for the team because of homework, you are expected to tell a student leader or mentor.
- It is ***highly recommended*** that students do not date other students on the team. In most situations, the two students that are dating become a distraction for each other. Then when the relationship ends, there is usually a lot of animosity between the two students. If two students are dating, it is expected that they leave the

relationship at the door. This means that while they're at robotics or a robotics related event it should appear that they are not dating. This means no PDA, sitting on each others laps, hand holding, etc.

- Students are to respect each other, team mentors, parents, sponsors, volunteers and other teams. Students who continually have a problem following this rule will be asked to leave the team.
- Any student working on an FRC Robot or using a machine tool must have safety glasses on. This also applies to students who are in the general area as well. Any student who isn't wearing safety glasses (and needs them) will be asked to stop whatever they are doing immediately and put some on.

Regarding Commitment

- All students, mentors and parents must be signed up on CowNet.
- All students will be added to a student email list. The team uses this email list a way of sending out reminders and updates. It is critical that students get these emails. Students need to make sure that the team has their current email address and that they check their email daily. ***It is the responsibility of the students to check their email.***
- There is an all team meeting every Wednesday during the Fall semester. Students are required to attend these meetings. If a student has a valid excuse for not attending a meeting (project due, event for another class, etc) they must notify a team mentor prior to the Wednesday meeting. *A student with 3 unexcused absences will be dropped from the team.*
- In addition to the Wednesday meetings, there are meetings Tuesdays and Thursdays. During these meetings PR will have workshops and engineering will be working on VRC and other development projects. Students are highly encouraged to attend these meetings to continue learning new skills.
- Part of the experience of being on The Holy Cows is traveling to competitions. Students are expected to travel with the team to all regional competitions and the championships. There will be fundraising opportunities available to help subsidize student travel. Any student who may face financial difficulties should notify a team mentor ASAP to work out arrangements.
- Financial aid is available to help cover costs associated with being on the team (travel, lunches, etc). If a student thinks they will need financial aid, they must notify a mentor ASAP. Students will be eligible for financial aid if they have completed all the requirements to compete with the team, qualify for free or reduced lunch and can prove they have made significant effort to raise money (Piggybackr, bake sales, etc).
- In addition to building robots and competing, it is our team's mission to build relationships in the community, help other teams and show the community the importance of STEM. Throughout the year our team attends conferences, runs robotics competitions, mentors teams and reaches out to the community. Each student must complete a minimum of 40 hours of community service at these events. Remember, 40 hours is a minimum and it is not unusual for students to have over 80 hours of community service by the end of the season.
- Each student must log 80 hours during build season in order to compete with the team. Build season is a very important time of year. This is when our robot is built, when we're finishing up our award submissions, when we're preparing for

- competition and the best time for newer members to learn.
- Each student must attend at least 2 practices a week, logging a minimum of 6 hours/week, during competition season. Our team practices 6 days a week at Mission Bay High School. During the week there is a carpool set up to help transport students to practices. If a student does not attend the required amount of practices, they will not be allowed to compete with the team.
 - A student who fails to complete 40 hours of community service, 80 hours during build season and attend 2 practices will not be allowed to compete with the team and will not receive their 2 team shirts, nametag, etc.

Regarding Training

- Before a student can use a tool, they must be trained on how to use that tool. During the Fall there will be several opportunities to learn how to use some of the tools in the classroom. Each student is expected to learn how to use the different tools in the classroom.
- During the Fall our team will host training workshops that will help teach and prepare students for different areas of the team. The schedule will be posted outside the engineering lab starting the Tuesday after the first all team meeting. Students are encouraged to attend at workshops on a regular basis.

Guidelines

The following section is a set of guidelines we hope every student follows during their time on the team.

"Success is the peace of mind which is the direct result in knowing that you made the effort to become the best that you are capable of becoming"

- John R. Wooden

(UCLA Men's Basketball Coach 1948-1975, Won 11 National Championships)

Industriousness

Be a hard worker. There is no easy way to achieve success. Success follows those who work hard to achieve their goals.

Friendship

Don't compete against each other, help your teammates become the best they can be. Respect and camaraderie is an asset to any team.

Loyalty

Be loyal to yourself, be loyal to your teammates and be loyal to the team. Show up on time, show up when you're asked to show up, don't say you're going to do something and then not do it.

Cooperation

Work together to accomplish our team's goals. Always seek to find the *best* way rather than insisting on your way.

Enthusiasm

Be enthusiastic about what you're doing. If you're enthusiastic about what you're doing, then you'll strive to be the best. If you don't like what you're doing find a way to change it.

Self-Control

Be disciplined and keep your emotions under control.

Alertness

Always be alert and looking for ways to improve yourself and the team.

Initiative

Have the courage to take action and make decisions. Sometimes you will fail, but success cannot be achieved by inaction.

Intentness

Be persistent, be determined to reach your goals. Be determined to help the team achieve success.

Skill

Never stop learning. Never assume you know everything.

Team Spirit

Eagerly sacrifice personal glory for the welfare of all. 'We' supersedes 'Me'.

Poise

Don't panic under pressure. Don't let circumstance dictate your emotions.

Confidence

Be confident, not arrogant. Confidence is the knowledge that you have done everything possible to prepare yourself.

Competitive Greatness

Don't run from tough competition. Perform at your best when your best is required. Your best is required every day.

Student Leadership

This is the group of students who work with the team's mentors to run the team. Being a student leader is a lot of fun, but it's also a lot of work. Student leaders are expected to be a role model for other students to follow.

Requirements

1. Be a student at High Tech High, High Tech High International, High Tech High Media Arts.
2. Have been on the team during the 2013-2014 season.
3. In the 11th or 12th grade during the 2014-2015 season. Underclassmen are welcome to apply, but preference will be given to upperclassmen.

Rules and Expectations

1. Travel with the team to all competitions during the 2014-2015 season.
2. Enroll in the X-Block (Fall and Spring semesters) and Intersession if you attend High Tech High.
3. Be responsible for the tasks you are assigned. You are encouraged to delegate tasks, but in the end you will be the one responsible for the completion of those tasks.
4. Complete tasks on time. If you miss a deadline on one thing, you're preventing another thing from getting done.
5. Attend all team meetings.
6. Attend weekly managers meetings.
7. Complete more than 40 hours of community service. You should be at most, if not all community service events.
8. Be passing all of your classes with a "C" average. If you are not passing your classes, you will be asked to step down until you are passing your classes.
9. Have a professional email address (ex: jon_smith@gmail.com instead of rickr0ll3dhottie@gmail.com) that you use and check on a regular basis. One can be provided by the team, if you need one.

Selection Process

1. At the conclusion of the season, students will be asked to apply for leadership positions for the next season.
2. Students will have about a week to fill out and turn in their applications.
3. Interview times will be posted shortly after the application deadline has passed.
4. Each applicant will be given a 10 minute interview slot. During this slot, the applicant will meet with team mentors to discuss where the applicant might fit as a student leader.
5. After all the applicants have been interviewed, team mentors will deliberate and decide which applicants will take what positions
6. After team mentors have decided who will fill the leadership positions, they will meet with all the applicants to discuss their decision.
7. The new student leaders will be formally announced at the team's sponsorship banquet at the end of May.

Team Meetings

Team meetings will be held from 4:30pm-6:30pm every Wednesday from August to December. At these meetings we will discuss upcoming events, an update will be given from each department of the team. Afterwards, the team will split up into departments that students can work on projects in their departments.

Managers may also decide that they would like to meet on Tuesday and/or Thursday of each week to get more time to work on a project.

Leadership Meetings

After our VEX meetings on Tuesday, student leaders and mentors will meeting from 6:30p-7:30p. The purpose of these meetings is to check in with each department and make sure everyone is on the same page.

PR Workshops

On Tuesdays & Thursdays our team will meet to hold either a lecture or a hands on workshop on a PR-related topic. These are an opportunity for students to learn more about our team and learn skills that will be valuable during their time on the team.

VEX Sessions / Engineering Development

On Tuesdays & Thursdays our team will work on VRC and different engineering development projects. Students who participate in VRC or are interesting in learning more about what goes into making a robot are strongly encouraged to attend these meetings.

X-Block

Students that attend High Tech High are expected to enroll in the FIRST Robotics X-Block. During X-Block students will help maintain older robots and clean and organize the shop. This is a great opportunity for students to learn about older robots as well as how the team organizes its shop.

Intersession

Students that attend High Tech High are expected to enroll in the FIRST Robotics Intersession. This takes place during the first week or two of build season. This time is used to prototype parts of our robot and work on preparing PR for competition.

Build Season

During build season (January - February), our team meets between 40 and 60 hours a week. There will be a sign in/out sheet available in the classroom to log how many hours each student works during build season. In order to travel with the team students are expected to log at least 13 hours a week during build season.

Practice

After build season, our team meets Monday, Tuesday, Wednesday, Thursday, Friday and Saturday every week at Mission Bay High School. At these meetings, we practice driving the robot, make improvements to the robot and prepare for competitions. Certain jobs require students to attend these practices, but it is highly recommended that students attend these practices as they are a chance to learn more about how our team functions, how the robot works as well as see the engineering design process first hand.

Shop Training & Safety

Any student working on or near an FRC robot, power tools or shop equipment must have closed toe shoes and safety glasses on at all time. Most of shop safety is understanding the tools you're working with and common sense. The bottom line: *Don't do nuttin' unsafe, doe!*

Prior to using a tool, students must be trained and signed off by a mentor. It is expected that every student take the initiative to complete their tool sign off list by the end of their first year on the team.

Tool list includes:

- Basic hand tools (wrenches, screw drivers and files)
- Polishing
- Arbor Press
- Lathe
- Mill
- Drill Press
- Impact Drivers & Hand Drills
- Sander
- Screws, Nuts & Bolts
- Tapping
- Chop Saw
- Skill Saw
- Band Saw
- Soldering Iron/Guns
- Wire Strippers & Crimpers

Travel

Travel Requirements

In order to travel with the team to competitions, students must meet the following requirements:

- 1) 40 hours of community service
- 2) 80 build season hours logged
- 4) Attended at least 2 practices every week (minimum of 6 hours/week).
- 3) Approval from all teachers
- 4) Have at least a "C" in all of their classes

Travel Rules

The following are rules that every student is expected to follow while traveling with the team.

1. Students are not allowed to leave the hotel without a mentor.
2. If our hotel has a pool at it and a student wishes to use it, their parent must notify the team that their child knows how to swim. The student must notify a mentor before going to the pool and when they're back from the pool. Any student going to the pool must be in the company of two other students.
3. Students will be given a bed check time when arriving at the hotel every evening. Students must be in their room at the time of bed checks and cannot leave after bed

checks. Students caught outside of their room past bed checks will be sent home at the expense of their parents.

4. All student meals are included in the cost of traveling with the team. Students are responsible for their own meals when the team is in transit
5. No public displays of affection are allowed. This is unprofessional and gives our team a bad image.
6. Disrespecting another team is forbidden. Any student caught disrespecting another team will be dealt with on a case by case basis.

Travel Dresscode

Our team prides themselves on maintaining a clean and professional image. Each student will be given two team t-shirts every year. Students are not allowed to wear team apparel (t-shirts, polos, sweatshirts) that has been modified or ripped to competition.

Student Leadership

- On days when no qualification matches are played, leaders must wear a current year t-shirt.
- On days when qualification matches are played, leaders must wear their polo shirts. Polo shirts MUST have the Hall of Fame logo on the sleeve.
- Closed toe shoes must be worn at all times.

Driveteam

- On days when no qualification matches are played, the driveteam must wear a current year t-shirt.
- On days when qualification matches are played, the driveteam must wear their polo shirts. Polo shirts MUST have the Hall of Fame logo on the sleeve.
- Closed toe shoes must be worn at all times.
- Drivers must have safety glasses at all times.

Students

- Students must wear a current year's t-shirt. Prior year t-shirts are not allowed
- Closed toe shoes must be worn at all times.
- Students in the pit must have safety glasses on at all times. If a driver needs glasses to correct their vision, they will be given a pair of side shields so they can see better.
- Students who are in the pit and NOT wearing a current year's team shirt will be removed from the pit.

Current Year T-Shirt

Our t-shirts change year to year. These changes are to reflect new sponsors or achievements our team has accomplished. It is important that students wear a current year t-shirt when they are required so that they give all of our sponsors the recognition they deserve. Following the 2013 season, all team apparel will have a "FIRST Robotics Hall of Fame" designation on

Competition Jobs

At competitions, every job is critical to the success of the team. Each student will be assigned a competition job and are expected to do that job. Failure to do a job may negatively impact a student's ability to travel with the team in the future.

Below is a list of competition jobs, the number of students needed for each job and the requirements of that job:

Competition Support Team

This is the team that is responsible for our team's on-field performance. In order for our team to be competitive on the field, the three parts of the Competition Support Team **MUST** be doing their job and working together. Being a part of the Competition Support Team is a privilege and comes with advantages, however it also means spending time at team practices after school and on the weekends.

Drive Team (1 Driver, 1 Operator, 1 Human Player)

This is the group of students responsible for driving the robot. These positions change yearly based on driver performance. In the Fall, a semi-open tryout will be held to determine which students will fill the Driver and Operator role. An open tryout will be held for the role of human player after the game is announced and it is determined what our team will need from a human player.

- Must attend all practices
- Cannot violate curfew, violations will result in a suspension from the driveteam.
- Must have a detailed understanding of our team's strategies as well as the game and game definitions

Pit Crew (1 Pit Crew Manager, 3-4 Students)

This is the group of students responsible for maintaining the robot during the course of a competition. A pit crew manager will be selected by team mentors based on how involved the student was during build season, practice attendance and how much they know about the robot. The 3-4 students will be selected by the Director of Engineering, the Pit Crew Manager and team mentors.

- Must attend all practices
- Must know about all aspects of the team including the robot, community outreach, mentorship, etc.
- Must know about how the robot works, tools needed to repair the robot.

Scouts (8-12 Students)

This is the group of students responsible for scouting other teams at competition. They will be watching matches and recording information on team's performance. After build season is over scouts are expected to attend practices to help look up information on teams, watch match video on teams and grade each team that we will be competing with at upcoming events.

- Must attend a minimum of 3 practices a week, minimum of 9 hours a week
- Must have a detailed understanding of the game and game definitions
- Help pre-scout competitions prior to us attending the competition

Competition Outreach Team

The Competition Outreach Team is responsible for interacting with judges & VIPs and documenting our experience at competitions.

Pit Speakers (2-4 Students)

This is the group of students that are responsible for being the front line and talking to judges and VIPs that come to our pit. Pit Speakers will be selected based on their knowledge of our team and robot as well as their practice attendance.

- Must attend practices
- Must know about all aspects of the team including the robot, community outreach, mentorship, etc.

Video (1-2 Students)

This group of students is responsible for recording ALL matches at a competition. This includes capturing the field feed as well as record 'full field view' video to be used for scouting and documentation.

- Must have an understanding of how to use a camera
- Must be responsible and independent

Photography (1-2 Students)

This group of students is responsible for taking pictures of every robot in their pit and on the field. These photos are to be used for scouting purposes as well as documentation.

- Must have an understanding of how to use a camera
- Must be responsible and capable of getting a task done on time with minimal supervision

Hall of Fame Booth (Championships ONLY, 1-2 Students)

These students will be manning our Hall of Fame Booth at the Championship. Their job is to talk to people who visit our booth in the Hall of Fame. These students must be knowledgeable about our team and well spoken.

- Must attend practices
- Must have a good understanding of how our team works and what our team does.

Students who do not receive one of these jobs will be placed on team spirit.

Team Apparel

Team members can purchase team branded apparel from the team at any time during the season. If an item is not available in your size or is out of stock, our team restocks inventories in late February / early March.

T-Shirts (\$12/each)

Zip Up Jackets (\$30/each)

Water Bottles (\$10/each)

Coffee Mugs (\$15/each)

*All prices are subject to change.

Team polo shirts are available to student leaders, members of the drive team, ~~chairman's presenters~~ and mentors. The team will provide each of these people with one polo. If an additional polo needs to be purchased, they can be purchased for \$35.

Parents

Parents are an integral part of the robotics team and are very important for our continued success. Parents are also a key factor in the motivation and dedication of each student. Supporting their child in all aspects of their team involvement is the key for them getting the most out of this exciting program.

As the cost of traveling increases we have decided to provide fundraising opportunities to help offset the cost of out of town competition. The funds raised at each opportunity will be divided up between the students who helped out at the event. You will be given an amount that your child has earned at the beginning of February. Money raised is for out of town competitions, and if your child is unable to attend then the money will go back to the students who attended events with your child. If you feel that your child will be needing financial assistance with the cost of traveling it may be available and this depends on how involved your child has been on the team, and how involved he/she has been with trying to help raise funds for their own travel.

Parent Responsibilities

Transportation

Parents are expected to provide timely transportation for their child, making sure that they are at the required meetings or events on time and ready to participate. It is important for the student or parent to notify a mentor if they will be late or unable to come. It is important to pick up on time as not to delay others. If the team is leaving for a competition or event, departure cannot be delayed. A parent from the team should always remain with the last student to be "picked up". It is not the responsibility of the mentors to wait for team parents. Consideration for the mentor's time must be taken into account.

Communication

Every parent's email address will be added to a parent email list. Throughout the season, our team will send emails to all parents about upcoming events, due dates and requests for volunteers. It is important that parents provide an email address that they check regularly so that they can stay up to date on team events. Parents should check the calendar on the website for meetings and future events related to the team.

Food

Parents are expected to provide meals for their own child except for the six weeks of build season. During the six weeks of build season parents will be assigned a minimum of 1 meal during build season, if you are unable to provide the meal on the day you are assigned it is your responsibility to find another family to switch with and make changes to the Google doc. Mentors are not responsible for feeding students.

Parents should expect that their child will be eating meals with the team at all competitions. Parents are responsible for the cost of these meals, money is collected ahead of time for the San Diego Regional and meals are included in the travel cost when we travel to other regional or the championships.

Season Overview

Fall (August-December)

Community Service

Our team is active in the community throughout the year for several reasons:

- We want to make the community a better place
- We want to show the community how important STEM is to our quality of life
- We want to spread FIRST and STEM education to the professional community
- We want to support youth robotics programs such as JFLL, FLL and FTC

Some of the events we do are:

- Albert Einstein Academy Lantern Festival
- American Cancer Society 3 Day Walk
- Battle at the Border (Off-Season FRC Competition)
- FLL Mentoring
- High Tech High FLL Qualifying Tournament
- KitBot Build Day
- Society of Laboratory Automation and Screening
- San Diego County Fair
- San Diego County Food Bank
- San Diego Fall Workshops
- San Diego FTC Championship Tournament
- Southern California FLL State Championship

Students are required to complete 40 hours of community service every year (May-May Year). This may seem like a high number, but we do enough events as a team throughout the year that most students will do well over 60 hours of community service. Remember, 40 hours isn't a cap, it's a minimum. If students can, they should do more than 40 hours. In addition, if a student is on our team for 4 years, they'll likely have 250+ hours of community service to put on their college applications.

Off-Season Competitions

To help train students, our team attends 2-3 off-season FRC competitions in the Fall. These are great because they're low cost, they show students how a competition works and they give us a low pressure/risk environment to get students used to roles they may have in the upcoming competition season.

In the past we've attended:

Indiana Robotics Invitational (Mid-July)

Fall Classic (Los Angeles, End of September/Middle of October)

Battle at the Border (San Diego, Middle of October)

VEX

Each student is required to do 1 year on one of The Holy Cow's four VEX Robotics Competition teams. Being on a team means you meet with your team, you're actively involved in the team (participate in discussions, help with the design and build, help prepare the team for competition) and you attend your team's competitions.

Most of the work happens during the Fall for VEX. Teams will meet Tuesdays from

4:30p-6:30p. Starting at the second Tuesday meeting, teams will have to present their progress to team mentors in a design review. The purpose of these design reviews is to discuss the progress of robot designs and make sure teams are meeting goals. If there is nothing planned on Wednesdays or Thursdays, teams are welcome to work on their robots.

Awards

During the Fall our Awards team begins working on our team's Chairman's and Woodie Flowers Award submissions. This includes creating timelines, writing rough drafts, figuring out presenters, collecting documentation, working on our Chairman's Award video and our Chairman's Award magazine.

Team Meeting Schedule

Our team meets:

Tuesdays (4:30p-6:30p): Training & Workshops

Wednesdays (4:30p-6:30p): Announcements & Worktime

Thursdays (4:30p-6:30p): VEX

Leadership Meetings will be Tuesday from 6:30p-7:30p.

Build Season (January - February)

Kick-Off

Kickoff is usually the 1st Saturday in January. This is when FIRST announces the new game for the FRC season. This is the kick-off of our 6 week build season. Every student is expected to come to kick-off. Afterwards our team usually meets at High Tech High to inventory our kit of parts, go over the rules and begin discussing game strategies.

Build Season

This is the 6 week period in which our team designs, builds and tests a robot. Our team meets 7 days a week throughout this period. Monday-Friday (4p-8p), Saturday (12p-8p) and Sunday (10a-5p). As the season progresses, we usually start staying later and later. The season usually breaks down as:

Week 1: Strategize / Prototyping / Design

Week 2: Prototyping / Design

Week 3: Prototyping / Design / Fabrication

Week 4: Design / Fabrication

Week 5: Fabrication / Assembly

Week 6: Assembly Test / Pre-Ship Scrimmage

Week 7: Stop building robot on Tuesday

Students are required to log 80 hours during build season. Whenever a student comes and goes, they need to sign in and sign out so that we can log how many hours each student put in during build season.

During the build season our team builds two robots. One robot that is bagged and used in competition and one robot that is used for practice. Our goal is to have both robots working by the time of Stop Build Day. This extra work gives our team a competitive advantage because we can continue developing software, practice driving and continue

making improvements to our robot between competitions. Our goal is to continually improve our robot's performance throughout the season, and having a second 'practice' robot is a helps us achieve that goal.

Pre-Ship Scrimmage

The pre-ship scrimmage is an event we help run with the help of Madison High School's FRC team. We set up a wooden field and teams are free to use the field to practice driving and test their robots. The event is held the Saturday and Sunday of week 6. It is our goal to have our 'competition' and 'practice' robots running in time for the pre-ship scrimmage.

Stop Build

Stop build day is when our team puts our 'competition' robot in a bag and seal it until we attend our first competition.

Competition Season (February - April)

Practice

Immediately following Stop Build Day, our team begins practicing with our practice robot. Practices are held from 4p-7p Monday through Friday and 12p-6p on Saturdays. This allows for ample training time so both the drivers and the pit crew can perform at a high level at competition. In addition, our team will continue making software and hardware improvements to our robot.

Students who aren't on the driveteam or pit crew should still show up to practices because they're a great opportunity to learn more about how our robot functions and get involved in the continual improvement process.

Students in public relations also need to attend practices to practice the chairman's presentation and prepare for our upcoming competitions.

All students should attend practices. There is never a shortage of jobs at practice!

Regionals

Regionals are the first round of competitions we participate in. There are about 70 Regional and District Competitions around the world. Usually there are between 50 and 60 teams at a regional competition. Each team plays a total of 10 qualification matches. At the end of qualification matches, the top-8 seeded teams select two teams they want to be on their alliance for the elimination tournament. The elimination tournament is three round, best 2 out of 3 bracket. 8 alliances compete against each other to determine a Regional Champion. At each regional, 6 teams qualify for the Championships:

- 3x Regional Winners
- 1x Regional Chairman's Award Winner
- 1x Engineering Inspiration Award Winner
- 1x Rookie All-Star Award Winner

Our team attends two regional competitions every year. Since there is a regional competition in San Diego, we attend the San Diego Regional. For our second regional competition, we have to select a regional to travel. In the past we've attended:

Inland Empire Regional (2013)

Las Vegas Regional (2005, 2006, 2007, 2009, 2014)
Los Angeles Regional (2008)
Utah Regional (2010)
Silicon Valley Regional (2011, 2012)

While our team gets to pick which regional we travel to, there are a number of factors that go into the selection process:

1. Distance - The further we have to travel, the more money it costs to travel
2. Capacity - Some regionals fill faster than others
3. Timing - We don't want to compete at a week 1 regional and we don't want to compete at a regional that is the weekend following the San Diego Regional

When the regional schedule is released, we will list the regionals we can attend and make a decision as a team.

Championships

The championships is the culmination of the FIRST season. It is an honor to qualify for championships, and every year we've considered ourselves fortunate to qualify. At the championships, teams that qualified from other regional and district competitions are placed at random into four divisions (Archimedes, Curie, Galileo, Newton). Each division runs as its own competition. At the end, the 4 division winning alliances compete on a neutral field called 'Einstein' to decide a world champion.

The same awards that are given out at a regional are given out at the championship, except that instead of competing against 50 or 60 teams for an award, there are 350-400 teams competing for the same number of awards. Winning an award at the championship is an honor. There are a couple of differences at the championship:

1. The Chairman's Award winner gets automatic entry for life into the championships and has their championship registration paid for the following year.
2. The Chairman's Award winner selects one senior to receive the Allaire Medal which gives that student a 4 year full ride scholarship to the college/university of their choice.
3. The Engineering Inspiration Award and World Champions automatically qualify for championships the following year.

Post Season (May - July)

Sponsors Banquet

Our team likes to end each year with a banquet to thank our sponsors, congratulate our outgoing seniors and announce our new student leaders. This is usually held at the end of May.

We also give out 4 awards:

Founders Award - Goes to an outstanding sponsor who went above and beyond for our team

Past Winners:

2008 - BlueChip Machine & Fabrication

2009 - BAE Systems

2010 - San Diego County Sheriff's Department

2011 - SAIC
2012 - Qualcomm
2013 - Nordson Asymtek
2014 - High Tech High

Parent of the Year - Goes to an outstanding parent who helped our team

Past Winners:
2008 - Maria Shepard
2009 - Maria Shepard
2010 - Cathy Schulz
2011 - Sally Tukeman
2012 - Keri Dechant
2013 - Lisa Ferguson
2014 - Melissa Olamendi-Smith

Rookie of the Year - Goes to a rookie member who best embodied our team

Past Winners:
2010 - Jeremy Howe
2011 - Connor Worley
2012 - Evan Ferguson
2013 - Cameron Paschalydis
2014 - Krisztina Rakosi

Senior Scholarship - Goes to a senior who make a significant contribution to our team

Past Winners:
2008 - Brittany Parker
2009 - Jessica Raptis
2010 - Olivia Perry & Cameron Parvini
2011 - Chris Lutze
2012 - Henry Gruenbaum
2013 - Carmel Fisco* & Jeremy Howe*
2014 - Andres Rodriguez

*2013 Senior Scholarship Winners Were Recipients Of The 2013 Allaire Medal

Indiana Robotics Invitational

IRI (Indiana Robotics Invitational) is an invitational off-season event. Each year over 100 of the best teams in FIRST apply to the event and only 76 get an invitation. The event is in Indianapolis and is widely regarded as FIRST's All-Star Game. Our team has been fortunate enough to receive an invitation in 2009, 2010, 2011, 2012 and 2013. Each year, this event has some of the best matches all season. Every student should experience IRI at least once while they're on the team.

CowNet

About CowNet

CowNet is our team's information management system. Students, mentors and parents register through CowNet. From then on mentors can access student and parent contact information. Students can see what events are coming up and can tell the team if they'll be attending or not. In addition, the team uses CowNet to take meeting and event attendance. This allows students to see how many community service, build season and practice hours they've accumulated over the year. Parents can also see how involved their child has been.

CowNet is also used as our part numbering and tracking system for our team's robots.

Registration

Students register through: <http://www.team1538.com/cownet/index.php?page=registerStudent>

When a student registers for the team, they must provide the name and email address of at least one parent. After the student completes their registration, they will be sent a confirmation email. The student must click on the confirmation link in the email. In addition, their parents will be sent an email asking to confirm their email address. **Before a student can log in both the student AND at least one parent must confirm their accounts.**

Usage

After registration is complete, students will be able to sign in and register for events. Students who have not completed the entire registration process will not be able to receive attendance credit for events. It is important that ALL students complete their registration before the first all team meeting of the school year. The team expects its members to check CowNet daily to see if new events are available.

Our team's email lists are generated from the emails stored in CowNet. Make sure the email you use to log into CowNet is one you check on a regular basis or you will not receive emails from the team.

All students will be able to see the part numbering/tracking system. Select students will be given permission to edit and update this part of CowNet on an as need basis.

All the information stored in CowNet is confidential. Please do not release or distribute any of the information stored in CowNet without permission from a team mentor..