

## Chairman's Award - Team 2729

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2021 - Team 2729

**Team Number**

2729

**Team Nickname**

Storm Robotics Team

**Team Location**

Marlton, New Jersey - USA

**Describe the impact of the *FIRST* program on team participants within the last 3 years. This can include but is not limited to percentages of those graduating high school, attending college, in STEM careers, and in *FIRST* programs as mentors/sponsors.**

Storm leaves such an impact on students that alumni return to FIRST as volunteers, judges, or mentors. Of our current team, 97% plan to pursue STEM careers in the future. Storm thrives as an ongoing education organization where students happily help the community. FIRST teaches students communication, cooperation, and collaboration—the essence of GP. FIRST offers our members opportunities to learn from other teams and gain access to resources that enhance their experience in FIRST and beyond.

**Describe your community along with how your team addresses its unique opportunities and circumstances.**

Storm collectively volunteers over 1,000 hours per year. We host Roadside Cleanups, FIRST Compass Workshops, FRC Kickoffs, and Family Science Nights. Through FIRST, Storm spearheads initiatives like our Crayon Project, in which we integrate engineering skills with outreach, and Storm for Storm Relief, where we aid natural disaster victims. Through FRC Against COVID-19, we distributed masks to essential workers. In time, our students learn to be altruistic and embody Gracious Professionalism.

**Describe the team's methods, with emphasis on the past 3 years, for spreading the FIRST message in ways that are effective, scalable, sustainable, and creative. How does your team measure results?**

Our Crayon Project involves designing and producing crayons for people with fine-motor disabilities. We donate to Kirby's Mill School, Team 1640 Sabotage, and local schools. We are working on expanding by building a relationship with Crayola. Globally, Storm for Storm Relief was made to provide resources gathered in community drives for disaster victims. In past years, we donated to Puerto Rico and California. This year, we reached out to schools in Australia in light of the ongoing bush fires.

**Please provide specific examples of how your team members act as role models within the FIRST community with emphasis on the past 3 years.**

Through our FLL Night, Storm members interact with young students on FLL teams that our team has started. Our scouting app—Scouting Radar—has become a worldwide success, with over 500 downloads in 27 countries through the Google Play store. Several teams use it to analyze other teams' strategies to utilize when picking alliances at competitions. This app—through an open APK—provides others with the groundwork to design their own strategy application, furthering the success of many FIRST teams.

**Describe your team's initiatives to Assist, Mentor, and/or Start other *FIRST* teams with emphasis on activities within the past 3 years.**

Storm was instrumental in founding The Combustible Lemons Team 5113 and BERT Team 4750. For the past two years, we have mentored Mastery Charter Team 7877, a rookie team new to *FIRST*. Our Kickoff event unites regional teams, assisting rookie teams during their first season. We hold a strategy brainstorm at Kickoff with rookie teams that we mentor to help strategize for the new game. During build season, we maintain close contact with them to make their first build season lastingly rewarding.

**Beyond starting teams, what initiatives have you done to help inspire young people to be science and technology leaders and innovators? What results have you seen from your efforts in the past 3 years?**

Due to high student interest, Storm is introducing more and more students every year. Our FLL Open House is an event where the team gives young students a tour of our workspace. Storm has created three FLL teams: the Marlton Mustangs, Robo Duckies, and the Beeler Bots. Storm's various robot demonstrations also provide many students on the team with their first ever experience with *FIRST*. Future members are introduced to Storm through these events and have been a part of our team.

**Describe the partnerships you've created with other organizations (teams, sponsors, educational institutions, philanthropic entities, etc.) and what you have accomplished together with emphasis on the past 3 years**

Storm hosts a program called *FIRST* Compass, where *FIRST* teams from South Jersey are invited to learn and hold their own workshops on various *FIRST* related topics. Each year, we have 200+ individuals attend. We recently joined the Help Hub of the Compass Alliance to provide *FIRST* Mid-Atlantic teams with the resources they need to thrive as a team. Storm works with rookie teams at our Kickoff to help them understand the game and have a good foundation for improvement and success in *FIRST*.

**Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, *FIRST*, and your communities.**

Storm emphasizes diversity and inclusivity more than ever before. We actively work to make sure that all students feel safe and accepted on our team. After alumnus Joshua Betts co-founded the LGBTQ+ of *FIRST* blog in 2015, only one Storm member joined. This year, more have stepped up to represent Storm by becoming ambassadors for the LGBTQ+ of *FIRST*. These members embody both Storm and *FIRST*'s mission: to ensure that students develop a lifelong passion, lifelong memories, and lifelong friends.

**Explain how you ensure your team and the initiatives you have created will continue to run effectively for the foreseeable future**

For the future, Storm plans to do robot demonstrations to engage young children and start initiatives with a mission to create *FIRST* teams in South Jersey. We hope to engage with prospective members and potential engineers. Storm plans to expand the team and its outreach by strengthening relationships with current sponsors. We have already begun using our resources to develop global initiatives. Storm will look beyond the borders of South Jersey and spread *FIRST* throughout the world.

**Describe your team's innovative strategies to recruit, retain, and engage your sponsors within the past 3 years**

Storm is grateful to have a strong sponsor support that guides us through the season. Our largest contributors are Lockheed Martin, NAVAIR, and Comcast. Every February, Storm completes a Critical Design Review at Lockheed Martin. We hold fundraisers at local Pancho's, Chick-Fil-A, and Panera Bread. For the past two years, we have hosted an "Entrepreneurship Game" which enabled our team to go out into the community and interact with local businesses. From this, we have obtained 14 new sponsors.

**Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.**

Storm increases female presence within the team by promoting STEM in various ways. We participate in Lockheed Martin's Women's Day in Engineering to give females a hands-on experience in a comfortable environment. Storm students lead demos to encourage future female members. As a result, the number of female members in Storm has grown immensely, and we have more female mentors to accommodate and represent the team. In the past two years, our female membership has increased from 23% to 45%.

**Describe your team's goals to fulfill the mission of *FIRST* and the progress you have made towards those goals.**

A child's face lights up with fascination as Kairos, our 2019 robot, climbs to HAB level 3 with ease. A vital part falls off our robot and a friendly face from Team 365 saves the day. Other teams shout, "Clap, Clap, Whoosh" at the end of a grueling match. *FIRST* makes more than robots; it creates gracious professionals. It creates youths who strive to innovate in an ever-changing world along with a community that values altruism and kindness. *FIRST* creates the faces of the future.

**Briefly describe other matters of interest to the *FIRST* Judges, including items that may not fit into the above topics. The judges are interested in learning about aspects of your team that may be unique or particularly noteworthy.**

During COVID-19, Storm Robotics continues to prioritize a sense of team closeness, despite being six feet apart or on a

Google Meet. We make sure that everyone's voice is heard, whether you're an experienced member or a new one. Everyone has a chance to express their ideas, and to express them with a smile. Whether we're cheering in the stands or rushing to finish the autonomous code in a Google Meet, Storm makes sure to keep that everyone has a positive team experience.

## Essay

Mission: Deliver the Vaccine

"There's a storm! Everyone inside!"

Loads of people rush into the bunker at once. We've taken immense damage, and everyone is trying to repair various systems. The citizens desperately search for protection.

As a new member of Storm Robotics, I still don't know where I fit in. Everyone seems to have a role on the team. Just as I am about to give up and go to the bunker, I hear a voice:

"Hey, Krisha! They need two new members to do this job." My friend Pranav, who also joined recently, is the only person I know. He guides me to a Storm official who hands us a map.

"I'll keep this brief. We're understaffed right now due to the storm, but we need to deliver this vaccination shipment to the hospital."

This is it. My first mission. Pranav gestures, "Come on, we gotta go!"

Checkpoint 1: Team History

We rush through the doors, eager to start.

"Looks like you guys have somewhere to be!"

An unfamiliar face meets us at the first checkpoint. She leads us over to the shipments with a smile.

"I'm Ilana. This must be your first mission! Just follow the checkpoints on the map and you'll be okay. Wow, my first mission was forever ago!"

"Yeah, we're new here. How long have you been a part of Storm Robotics?"

"I've been here for 13 years, ever since our inaugural year in 2008. The founders of Storm Robotics, Mr. Knauss and Mr. Hessler, created the team after separating from the Iron Devils. Now, our students come from both Lenape and Cherokee High Schools."

"I almost forgot that Storm has members from two schools, we work so well together," I grin at Pranav. We're two of 29 new members on our team of 60 people. We all come from different grades and different experience levels, but everyone seems to have an important job.

"Our team is very diverse; it's why we're more than robots! Anyways, take these shipments, drive our robot, Lightning, and go to each checkpoint. Good luck!" She waves as we drive off with Lightning and the vaccines.

Checkpoint 2: Sponsors

We stop in front of a tall building and notice people wearing unique shirts—not like Storm Robotics's official jerseys. They read "Pancheros, NAVAIR, DoDStem" and many more.

A woman rushes out to greet us. "Hey, are you the vaccine delivery group?" Pranav and I nod in unison.

"Great, I'm Sabrina! Our sponsors here are gonna be helping you speed up the process and guide you to the hospital."

"Who are our sponsors?"

Sabrina smiles at us, "Everyone you see here! Storm relies on its connections with sponsors to get through the year. They provide mentors, funding, equipment, and even food. Because of them, we're also able to fund our outreach and give back to the community in our own innovative way. Some sponsors are local businesses, while others are large engineering firms."

Just then, a group of people wearing shirts that say "Lockheed Martin" and "Storm's Parent Booster Organization" approach Lightning with boxes of supplies.

## Essay - page 2

"Our biggest sponsor is Lockheed Martin. They host an annual Critical Design Review, where we present our progress two thirds of the way through build season to professional Lockheed engineers and executives. We take their advice to make improvements to our process. Our Parent Booster Organization consists of a group of parents within the team, and they help us stay in touch with sponsors. We coordinate our own outreach, but the Boosters help us keep track of everything!"

Pranav and I are in awe. "Wow," he says. "I had no idea we're so involved with our community!"

"The community helps us just as much as we aim to help them. Once you reach Lauren's checkpoint, she'll tell you all about how we give back!"

Checkpoint 3: Outreach

A figure waves to us from the checkpoint. As we move closer, we see another Storm member

"You guys must have the vaccine delivery shipment! I'm Lauren! I heard you guys are new, so this is your first time seeing our outreach!"

"I've heard about some of Storm's outreach, but I haven't learned much about it. What exactly do you do here?"

She smiles and leads us past a set of doors. "I'll start with the basics: A big part of Storm's outreach involves how we connect to our community. Prior to COVID-19, we actively volunteered to clean roads and hold free car washes. We've done this for twelve years to beautify our area and help our environment." She shows us pictures of kids my age, wiping down cars and picking up trash, all of them smiling.

"Not only that, but we have projects that involve engineering and science. One of our larger, long standing projects for this was the Crayon Project, in which we designed and built ergonomic crayons for children with fine motor disabilities. We melt down recycled crayons and mold into teardrop shapes. Then, we send them to local schools. Due to COVID-19, we paused production, but we plan to refine the mold and distribution." We hold the crayons, and take note of the unique shape.

"During COVID-19, our biggest project is participating in Lockheed Martin's Engineering Week. Several members of our team created a video to showcase our team and the projects we've been working on during COVID-19. We showed this video to eighth graders in the area. Despite COVID-19, we prioritize spreading our message."

"Hey, my younger sister told me about that video! Now she wants to join Storm, that was outreach?" I recalled how excited she was after watching the video.

"Yep! Our goal is to spread awareness of FIRST and Storm throughout the community! What we do goes beyond robots, we're empowering the next generation of engineers. In fact, a lot of our outreach is FIRST related!"

Just then, another girl approaches us, "Hi guys, I'm Shloka!" she says. We introduce ourselves, and she tells us about Storm and FIRST.

"While Storm reaches out to our community, it's equally vital for us to make connections within FIRST."

"How so?" I ask.

"We mentor and advise teams like Team 5113 in their rookie years, including BERT Team 4750 and Team 7877 of Mastery Charter School. Storm works to give them a proper welcome into the world of FIRST. Storm also hosts a yearly kickoff event, where we invite teams from all over South Jersey to celebrate the FIRST game reveal at the start of the season. This allows FRC teams to interact and get ready for the season. Last year, 22 teams attended!" She also explained FIRST Compass: a series of workshops offered to nearby teams. Mentors, students, and judges discuss topics ranging from CAD Design to Outreach.

Shloka shows us some pictures of FIRST Compass—there had to have been at least 200 people there!

"Last year, we even became a Help Hub for the Compass Alliance to connect local teams with resources that they need during build season."

"Wow. It's a little overwhelming," I admit, and Pranav nods.

"Don't worry!" Shloka reassures us. "In time, you'll feel right at home. Storm is all about inclusivity! We promote it all throughout FIRST. Josh Betts, a Storm alumni, co-founded the blog for the LGBTQ+ of FIRST. Now, several current members are ambassadors, and they promote inclusivity throughout Storm, FIRST, and the community as a whole. In 2019, we won the Judges Award for our message of acceptance."

"Incredible!" Pranav replies.

"Yes! It's been so nice meeting you both," I say, looking at Lauren, "but we've gotta go!" I glance at the map. "Any idea

where Team Spirit is?"

"Straight ahead, good luck!"

We wave to them, ready for the next checkpoint.

Checkpoint 4: Team Spirit

Pranav and I speed up as we see another person.

"Hi! I heard you two were stopping here. I'm Anna."

We walk closer. "How has the mission been so far?" she asks.

"It's been great!" Pranav tells her, "So what do you do on Storm?"

"I handle team spirit on Storm! Over the years, we've won lots of Team Spirit awards since 2012. Our students consistently demonstrate Gracious Professionalism, which earned us the World Championship award in 2018 through the interaction with other teams and through their work ethics."

"Even in a pandemic?" I ask.

"We have Google Meets and breakout rooms that maintain the involvement in Storm. Despite the changes in this season due to COVID-19, we encourage new members to familiarize themselves with others on the team and with FIRST. Whether you're a new member or an alumni, everyone's voice is heard."

"Alumni?"

Another person steps up to meet us. "Hi, I'm Sid! I'm an alumni here."

"What do the alumni do?"

"We come back to help during the season. Haven't you heard of the "Full Circle Effect?"

We shake our heads.

"Storm's "Full Circle Effect" is the process in which students join Storm, graduate, pursue a career in STEAM, and return as mentors. 75% of the mentors are FIRST alumni, and most of our team wants to pursue a career in STEAM after graduation. We alumni continue to come back and offer the team wisdom during the season, continuing to foster a love for FIRST."

In the distance, younger kids test a LEGO robot. "Some of us even started our own FIRST teams. We make it a priority to spread the love for STEM and FIRST everywhere, even after graduation. After all, we are more than robots."

Destination: Hospital

The hospital is packed, but we find the vaccine dropoff zone with ease. The doctors looked relieved to see us. "The work that Storm does is amazing. Your team is truly so much more than robots." Pranav and I beam at her words. We leave the hospital, ending our mission. The journey was long, but I feel more sure of myself now than I did earlier, and I see that Pranav feels the same way.

Everyone we've met taught us something new about Storm. Our job isn't just to build robots. We inspire the community, other teams, and most importantly, we inspire each other. The people we interact with, whether they're our sponsors, other teams, alumni, or teammates, all contribute to promoting a love of STEAM that permeates through generations. After all, Storm is more than robots.