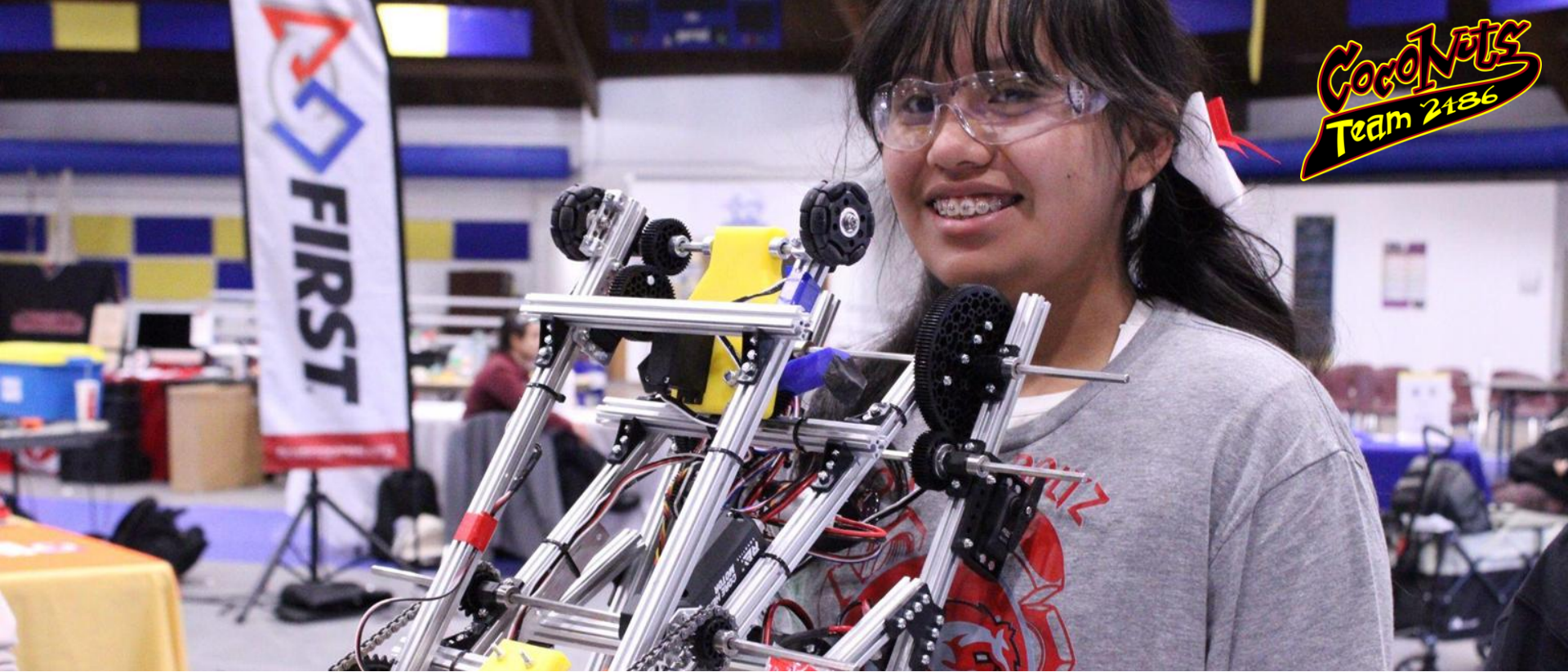




CocoNuts
Team 2486

**RezBotics: How to Engage with Indigenous
Communities through *FIRST***
FRC Team 2486 CocoNuts, Flagstaff, AZ

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Who are we?



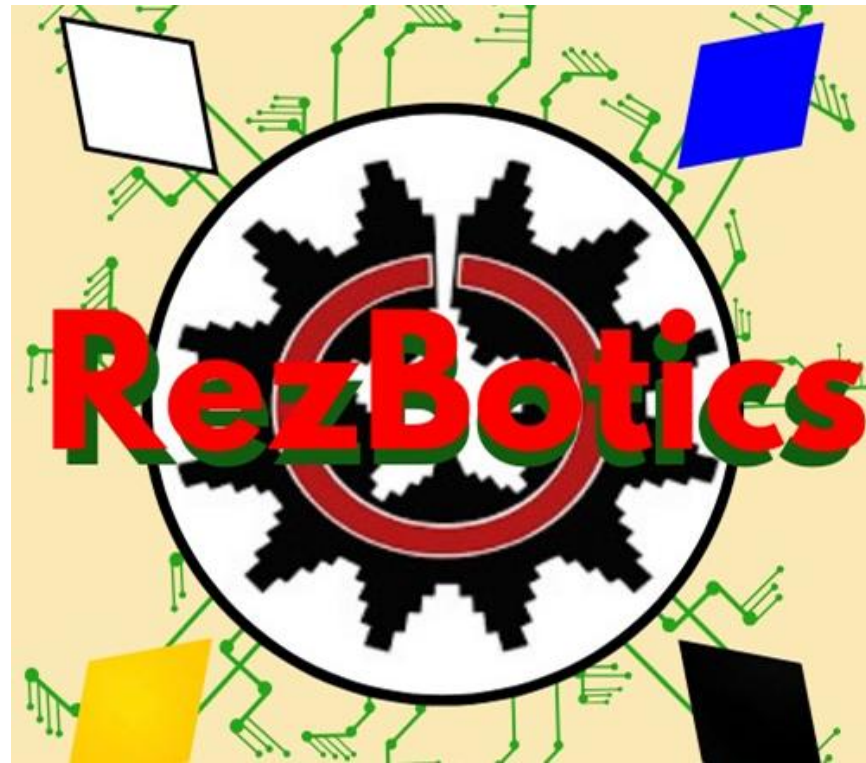
Kaleigh P. Tortice

1. Naasht'ézhí Tábaq̃a (Zuni Edgewater Clan)
2. Kiis'áanii (Hopi)
3. Tábaq̃a (Edgewater Clan)
4. Dziłghá (White Mountain Apache)

Haley R. Luman

1. Tódich'ii'nii (Bitter Water Clan)
2. Ta'neeszahnii (Tangled People Clan)
3. Áshjǫ́hí (Salt Clan)
4. Hashk'ąą hadzohí (Yucca Fruit Strung Out)

**25-35% of CocoNuts
each season are indigenous**



What is RezBotics?

An initiative to start FIRST robotics teams on the Navajo Nation by partnering with schools, school boards, and community groups.

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Ké

Ké means kinship and is a value in Navajo culture to building relationships with community.

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Community on the Navajo Nation

- Limited access to electricity and running water.
- Dirt roads are what connect people that are far apart.
- Some communities on the reservation only have a grocery store and gas station.
- Towns and cities are 2-4 hrs away.
- Communities continue to follow traditional values.
- Chapter houses are organized by your place on the reservation but also by clans.

Obstacles to STEM Education on the Reservation

- Students travel long distances for education.
 - Some go to boarding schools or dorms.
- Teacher turnover rate is much higher than in comparison to Arizona.
- High dropout rate, high student apathy.
 - Many students don't have goals beyond high school
- Internet is unreliable or non-existent in many places.
- Few STEM resources, classes or role models.
 - Students may not see STEM as a potential career path.



Indigenous Community Outreach Events

Inspiring the youth through STEM events

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Indigenous Community Outreach Events

The CocoNuts attend and run STEM Fairs locally on the Reservation:

- Leupp Díné People are the Future STEM Fair (*1 hr from Flagstaff*)
- Window Rock Annual Navajo Nation Fair (*3 hrs from Flagstaff*)
- STEM-Nation Fairs in Kayenta (*2.5 hrs from Flagstaff*)

Local STEM events help to close the distance between students and STEM opportunities.

Diné People Are the Future STEM Fair

- CocoNut initiated, organized and run
- During after-school daycare time
- Navajo Taco Sale
- Allows students, teachers, and families to engage with STEM with fun “make and take” activities
 - *Examples: paper rockets, cotton ball catapults, kaleidoscopes*
- Showcases indigenous-serving STEM organizations
 - *Examples: Institute for Tribal Environmental Professionals, BIA Fire Management, American Indian Mobile Educational Resources, Chinle Planting Hope, BIA Fire Management*



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Bringing *FIRST* to the Diné (Navajo) Nation

The Story of RezBotics

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How did the CocoNuts start “RezBotics”?

STEM Fairs on the Navajo Nation led to our partnership with Navajo Transitional Energy Company (NTEC)

- NTEC had a history of trying to start robotics teams that failed.
- We had expertise in training coaches and running events.
- NTEC has community connections and funding for STEM education.

RezBotics Framework

- NTEC sponsors robot kits for teams
- CocoNuts secure FTC rookie grants from *FIRST* HQ
- Annual hands-on teacher training in a central location on the Reservation - *includes program information & bot build*
- *FIRST* Tournaments on the Reservation
- Teams get permission from school admin to participate.
- Teams must compete in at least one official event to keep the robot kit



Unifying Culture & Innovation in RezBotics Teams

*Rebuilding the future by starting & sustaining indigenous
FIRST teams.*

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Building & Sustaining RezBotics Teams

- Recruiting Teams
 - Present to community organizations
 - Radio and social media advertising
- Supporting Teams
 - Build connections through teacher trainings
 - Hands-on build & programming session with own robot kit
 - Keep in constant contact with mentors
 - Remote meetings
 - RezBotics specific resources
 - Teams don't know what they don't know...it's SO new

Embracing Culture

- Team names, imagery, identity, robot design
 - Teams: Naabaahi Core, RezKidz, Chieftains
 - Robots: Cheíí (*Grandfather*)
- Team uniforms reflect traditional dress
- Engineering Portfolios include indigenous language, stories and imagery
- Judging interviews embrace storytelling rather than formal presentations



Building Partnerships

Building community connections to support STEM

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Building Partnerships

- Potential Partners
 - Schools (*event hosts, teams*)
 - Businesses (*volunteers, funding*)
 - Government (*volunteers, funding, outreach*)
 - Family connections
- Best Practices
 - Show up to build trust
 - Listen - partners may have insight and ideas
 - Local contacts matter



**FIRST Events on the
Navajo Nation**
Bringing FIRST events to indigenous communities

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Venues and Travel

- Local events reduced round-trip travel time for teams by an average of 6 hours! *Closest event prior was Flagstaff.*
- Remind teams to get travel paperwork in early.
- Some locations don't have easy access to housing or food options for traveling teams.
- Prepare for the unexpected...
 - *Example: Had to change NM venues Fri morning due to a cleansing ceremony...*

Events

- Volunteers
 - CocoNuts serve as referees & inspectors.
 - Local indigenous professionals serve as judges.
 - Allows students to “see themselves in STEM.”
 - Meet STEM role models for the first time.
 - AISES - *American Indian Science & Engineering Society*
- Embrace Culture
 - National anthem in Navajo
 - Guest speakers - Navajo Nation President Nygren



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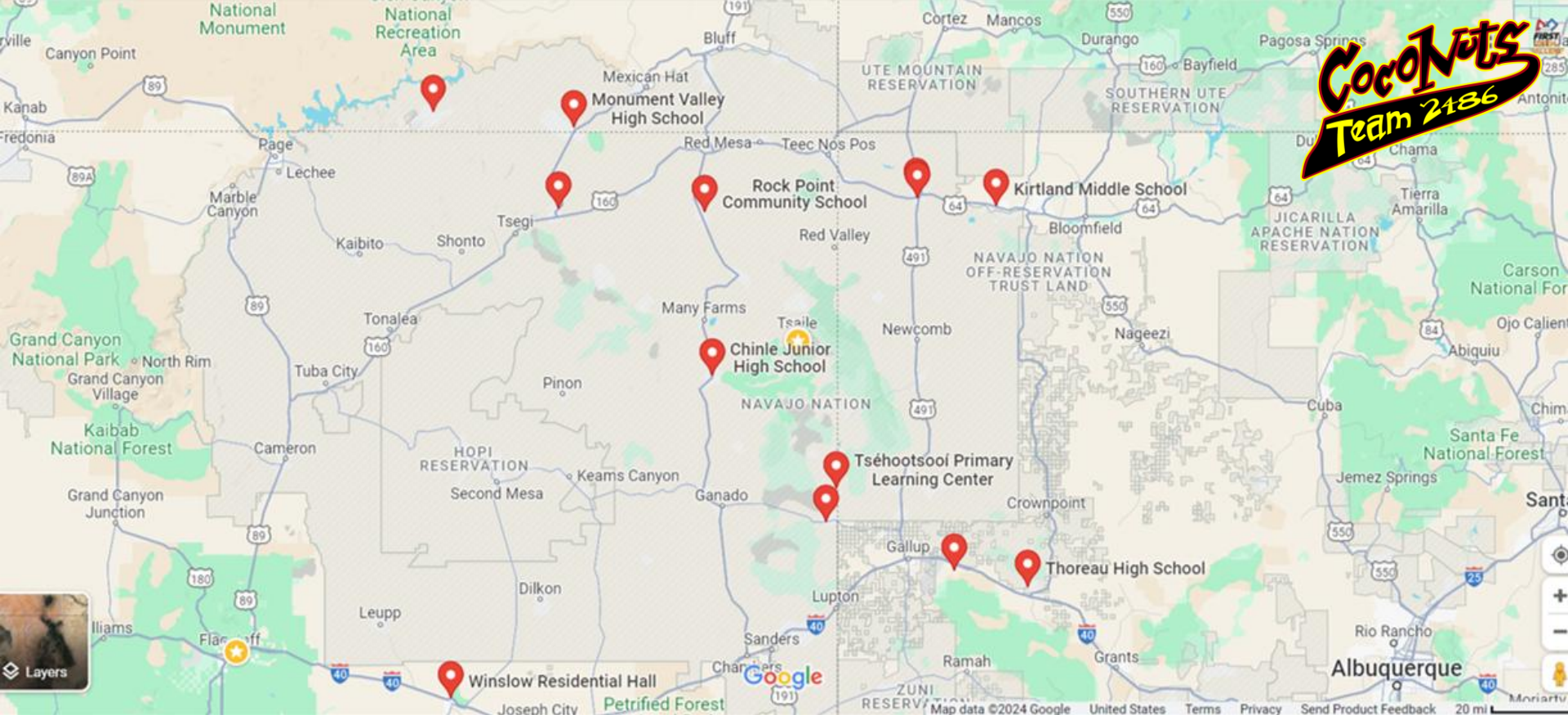
RezBotics Growth

Continuing the work to grow teams in the Four Corners

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Year 1 - 2023/2024 “Centerstage” Season

- 12 rookie teams + 2 existing teams
- 1 qualifier on the Reservation at Dine’ College
 - 3.5 hours from Flagstaff
 - In the heart of the Navajo Nation
 - Grounded in traditional philosophy
- 2 teams advanced to AZ FTC Championship
- Invitation to Inspire Winner to Worlds!



RezBotics Teams - Year 1

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Year 2 - 2024/2025 “Into the Deep” Season

- 6 new rookie teams
- New FTC Region: “Four Corners Tribal Teams”
 - Level playing field and encourages teams
- 2 events on the Reservation:
 - Qualifier in Chinle (*3 hours from Flagstaff*)
 - Region Championship at Dine’ College
- 2 teams advanced to FTC World Championship & 2 to Premier events!
- 2 Four Corners Leadership Award Finalists!

Year 3 - 2025/2026 “Decode” Season

- 8 new rookie teams
- 3 events on the Reservation:
 - Qualifier in Kayenta, AZ (*2.5 hours from Flagstaff*)
 - Qualifier in Kirtland, NM (*4.5 hours from Flagstaff*)
 - Four Corners Region Championship in Kayenta
- 2 teams advanced to FTC World Championship & 4 to Premier events!

Best Practices and Lessons Learned

- Drive! Show up to build trust.
- Be flexible and supportive
- Embrace culture - listen!
- Team attrition is common - *don't be discouraged*
- Be creative, consistent and persistent with communication - *just sending an email is likely to get no response.*





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***“My grandchildren, education is a ladder.
Tell our people to take it.” - Chief Manuelto***

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Ahéhee' (Thank you)!
Any questions?

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