



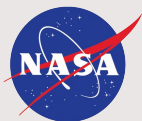
15th Annual First Nations Launch

April 26-28, 2024
Kenosha & Kansasville, WI



ARTEMIS
STUDENT
CHALLENGES

nasa.gov/stem/artemis.html



Partner

The material contained in this document is based upon work supported by a National Aeronautics and Space Administration (NASA) grant or cooperative agreement. Any opinions, findings, conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of NASA.



Overview

- Welcome and Introductions
- Competition Overview
- Reports and Scoring
- Prizes and Awards
- Recruitment
- Resources
- Reimbursements
- Patch Contest
- #IAMFNL





Meet the FNL Team

Wisconsin Space Grant Foundation

- Kevin Crosby, Director
- Christine Bolz, Assistant Director
- Rob Cannon, FNL Project Manager
- Connie Engberg, Project Support Assistant
- Megan Goller, Accounts Assistant

First Nations Launch

- Frank Nobile, Technical Coordinator, Wisconsin Tripoli
- Mark Abotossaway, Project Assistant/Advisor Liaison, Blue Origin (Alumni)

Tripoli Rocket Association

- Bob Justus, Tripoli Assistant, Illinois Tripoli
- Kevin Harnack, Tripoli Assistant, Wisconsin Tripoli

kcrosby@carthage.edu
cbolz@carthage.edu
rcannon@carthage.edu
cengberg@carthage.edu
mgoller@carthage.edu

maxq3@aol.com
mark.a.abotossaway@gmail.com

bob@mhbfofni.com



Meet the Judges

NASA

Orson John, Navajo
James Wood, Osage
Aaron Yazzie, Navajo
Joe Connolly, Haudenosaunee, Onondaga Nation
Lauren Denson, Apache

Raytheon

Aaron Ashley, Dakota-Omaha
Alexa Martinez, Mescalero Apache

Blue Origin

Manny Rivas

GE Aerospace

Brittany Nez, Navajo

US Navy

Kelsey Kawaguchi, Hawaiian

NASA Goddard
NASA Kennedy Space Center
Jet Propulsion Laboratory
NASA Glenn
Jet Propulsion Laboratory





Gateway Challenge Teams

- College of Menominee Nation
- College of the Muscogee Nation
- Haskell Indian Nations University
- Leech Lake Tribal College
- Montana Technological University
- University of Kansas
- University of North Carolina Pembroke
- White Earth Tribal and Community College





Moon Challenge Teams

- Carthage College
- Fort Lewis College
- Honolulu Community College
- Northern Oklahoma College
- Northwest Indian College
- Nueta Hidatsa Sahnish College
- Turtle Mountain Community College
- United Tribes Technical College
- University of British Columbia*
- University of California, Davis
- University of Waterloo*
- University of Wisconsin - Madison





Mars Challenge Teams

- Massachusetts Institute of Technology
- Northern Arizona University
- Oklahoma State University
- Queen's University*
- Rochester Institute of Technology
- University of California - Los Angeles
- University of Colorado - Boulder
- University of Hawai'i at Mānoa
- University of Oklahoma
- University of Washington - Seattle





Supplied by WSGC to Teams

- **Marketing/Recruitment Materials**
 - Posters and Postcards
- **Rocketry Workshop (Up to 3 members per team)**
 - Level 1 Rocketry Workshop during October (in-person at Carthage College) and January (Virtual)
- **Project Travel Award of \$4000**
 - Reimbursements issued through Carthage College
 - Additional travel funds for teams traveling from Mountain, Pacific, Hawaiian, or Alaska time zones
- **Two (2) Rocketry Reference Books (New College/Universities)**
 - Modern Rocket Design and Construction
 - Modern High Powered Rocketry 2
- **Report Feedback**
 - Teams will receive report feedback 1 week prior to next report
- **Low-Powered Rocket for Demo Flight**
 - Each team to fly low-powered demo flight
- **Motors (1) and Casing at Competition**
 - Competition motor and a motor build workshop during Competition Launch
- **Ejection Charges at Competition**
- **Hotel Accommodations Launch Weekend**
- **Max three (3) rooms for three (3) nights at select hotel**
- **Select Meals Launch Weekend**
 - Friday: breakfast, lunch and heavy appetizers in the evening
 - Saturday: breakfast, lunch and dinner



Optional Resources Available by WSGC to Teams

- **Additional Travel Funds**

- Additional travel funds for Mountain, Eastern, Pacific, Atlantic and Hawaiian Time Zones
- Based on one-way travel to Carthage College
 - \$500
 - 1,000-1,999 miles
 - Fort Lewis College, Massachusetts Institute of Technology, Montana Technological University, Northern Arizona University, University of Colorado Boulder
 - \$1,000
 - 2,000-2,999 miles
 - Northwest Indian College, University of California Davis, University of California Los Angeles, University of Washington Seattle
 - \$1,500
 - 3,000+ miles
 - Honolulu Community College, University of Hawai'i at Manoa



Additional Non-FNL Support

- Additional funding should be above and beyond FNL funding
- Additional support should not replace FNL funding
- Funds can come from:
 - Your state's Space Grant
 - <https://national.spacegrant.org>
 - Academic Institutions
 - Student Groups
 - Industry
- Non-FNL additional funding can be used for
 - Travel to and from Kenosha, WI for mentors and additional team members
 - Stipend for team's TRA/NAR mentor(s)
 - Mobile tools for the rocket group (battery operated, hammer, Dremel, drill, screwdriver, scale)
 - Traveling tool box to bring to launch weekend
 - Safety equipment – PPE
 - Launch 2 Learn Workshop at academic institution
 - Level I Rocket, Motor, and Certification Fee
 - Level II Rocket, Motor, and Certification Fee
 - Outreach events (i.e. low-powered rocket event, displays, etc.)
 - Team shirts, jackets, etc.



Competition Timeline

<https://spacegrant.carthage.edu/first-nations-launch/calendar/>

September 2023

- 1 Announcement of Opportunity
- 12 Informational Meeting @ 4:00 pm CDT (Zoom)
- 25 Launch 2 Learn Registration w/Non-Binding Notice of Intent (NOI) to Compete Due

October 2023

- 17 Informational Meeting @ 4:00 pm CDT (Zoom)
- 20 Visit FNL Booth #1538 at the AISES Conference
- 20 Non-binding Notice of Intent to Compete Due* (Moon/Mars)
- 27 Award Announcement (Moon/Mars/Gateway)
- 31 Kick-off Meeting @ 4:00 pm CDT (Zoom) (Moon/Mars)

November 2023

- 02 TRA/NAR Mentor Webinar @ 4:00 pm CDT (Zoom)
- 04-05 L2L Level I Rocket Certification Workshop @ Carthage College (registration required)
- 07 Proposal, Budget, and Design Review Development Webinar @ 4:00 pm CST (Zoom) (Moon/Mars)
- 09 FNL Office Hours @ 1:00 - 3:00 pm CST (Zoom)
- 13 Award Acceptance Material Due* (Moon/Mars)
- 14 Payload Webinar @ 4:00 pm CST (Zoom)
- 21 Project Management Webinar @ 4:00 pm CST (Zoom)
- 28 Introduction to RockSim Webinar @ 4:00 pm CST (Zoom)
- 30 FNL Office Hours @ 1:00 - 3:00 pm CST (Zoom)

December 2023

- 11 **Proposal Milestone**
 - Preliminary Budget Due* (Moon/Mars)
 - Flysheet Due* (Moon/Mars)
 - RockSim Due* (Moon/Mars)
- 12 Build & Assembly Techniques Webinar @ 4:00 pm CST (Zoom)
- 14 FNL Office Hours @ 1:00 - 3:00 pm CST (Zoom)
- 18 Notice of Intent to Compete Due* (Gateway)
 - Request for Virtual Rocketry Workshop Due*
- 22 Award Announcement (Gateway)

January 2024

- 09 Kick-off Meeting @ 4:00 pm CST (Zoom) (Gateway)
- 10 Launch 2 Learn Kit Reveal @ 4:00 pm CST (Zoom)
- 11 FNL Office Hours @ 1:00 - 3:00 pm CST (Zoom)
- 15 Award Acceptance Material Due* (Gateway)
- 16 Gateway Project Management Webinar @ 4:00 pm CST (Zoom)
- 18 FNL Office Hours @ 1:00 - 3:00 pm CST (Zoom)
- 19-20 Launch 2 Learn Rocket Certification Virtual Workshop (Registration Required)
- 22 **Preliminary Design Review (PDR) Milestone**
 - PDR Report Due* (Moon/Mars)
 - Budget Due (Gateway)
 - Flysheet, RockSim Due* (Gateway/Moon/Mars)
 - Flight Demo Due* - Upload rocket demo flight video on Facebook and/or Twitter
- 23 Avionics/Altimeters Webinar @ 4:00 pm CST (Zoom)
- 29-31 PDR Virtual Presentations (Zoom) (Gateway/Moon/Mars)



Competition Timeline

<https://spacegrant.carthage.edu/first-nations-launch/calendar/>

February 2024

- 01-02 PDR Virtual Presentations Continued (Zoom) (Gateway/Moon/Mars)
- 05 Final Requests to Change to Different Competition Challenge Due *
- 06 Recovery Webinar @ 4:00 pm CST (Zoom)
- 08 FNL Office Hours @ 1:00 - 3:00 pm CST (Zoom)
- 19 Patch Design Due*
- 20 Advisor/Mentor Meeting @ 4:00 pm CST (Zoom)
- 22 FNL Office Hours @ 1:00 - 3:00 pm CST (Zoom)
- 26 **Critical Design Review (CDR) Milestone**
CDR Report Due* (Moon/Mars)
Flysheet Due* (Gateway/Moon/Mars)
RockSim Due* (Gateway/Moon/Mars)
Final Motor Selection Due* (Gateway/Moon/Mars)
Official Team Roster & Lodging List Due* (Gateway/Moon/Mars)
Team Bio Due* (Gateway/Moon/Mars)
Team Photo Due* (Gateway/Moon/Mars)
All Team Member Registration on WSGC Website & FNL Application Due* (Gateway/Moon/Mars)
- 29 FNL Office Hours @ 1:00 3:00 pm CST (Zoom)

March 2024

- 04 Reimbursements Due* (First payout) (Gateway/Moon/Mars)
- 04-08 CDR Virtual Presentations/Initial Virtual Safety Inspection with WSGC (Zoom) (Gateway/Moon/Mars)
- 14 FNL Office Hours @ 1:00 - 3:00 pm CDT (Zoom)
- 26 Launch Operations Webinar @ 4:00 pm CDT (Zoom)
- 28 FNL Office Hours @ 1:00 - 3:00 pm CDT (Zoom)

April 2024

- 01 **Flight Readiness Review (FRR) Milestone**
FRR Report Due* (Moon/Mars)
Flysheet, RockSim, Educational Outreach Forms Due* (Gateway/Moon/Mars)
- 08-11 Final Virtual Safety Inspection with Tripoli Rocketry Association (Zoom) (Gateway/Moon/Mars)
- 11-14 Student Launch Initiative (Next Step Award 2023)
- 16 Advisor/Mentor Meeting @ 4:00 pm CDT (Zoom)
- 18 FNL Office Hours @ 1:00 - 3:00 pm CDT (Zoom)
- 22 Oral Presentations PPT Due* (Gateway/Moon/Mars)
- 25 Teams Arrive in Kenosha, Wisconsin
- 26 Welcome Breakfast/Competition Kick-off @ 8:00 am CDT - Carthage College, Kenosha, WI
Team Workday, Motor Build Workshop, Breakout Sessions, Final Safety Inspections of Drone and Rocket, Oral Presentations
- 27 Launch Day @ 7:30 am - 3:00 pm CDT - Richard Bong Recreational Park, Kansasville, WI
Closing Banquet @ 6:30 pm CDT - Carthage College
- 28 Launch Rain Date

May 2024

- 13 Final Reimbursements Due*
Post Launch Assessment Review (PLAR) Report Due* (Gateway/Moon/Mars)
2-3 Team Project Photos Due*

June 2024

- 03 Notification of Winners
- 14-20 RockOn! 2024 @ Wallops Flight Facility (Next Step Award 2024)

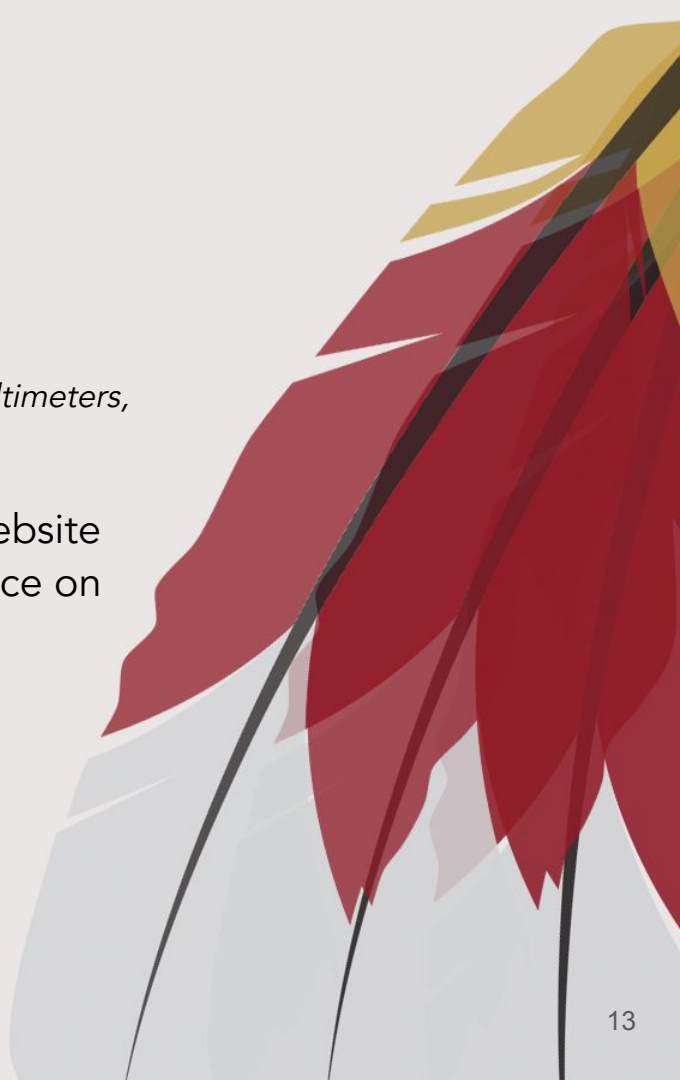
Summer 2024

- TBD Grand Prize Trip to a NASA Center (Moon/Mars Grand Prize Winners)



Key Changes for 2024

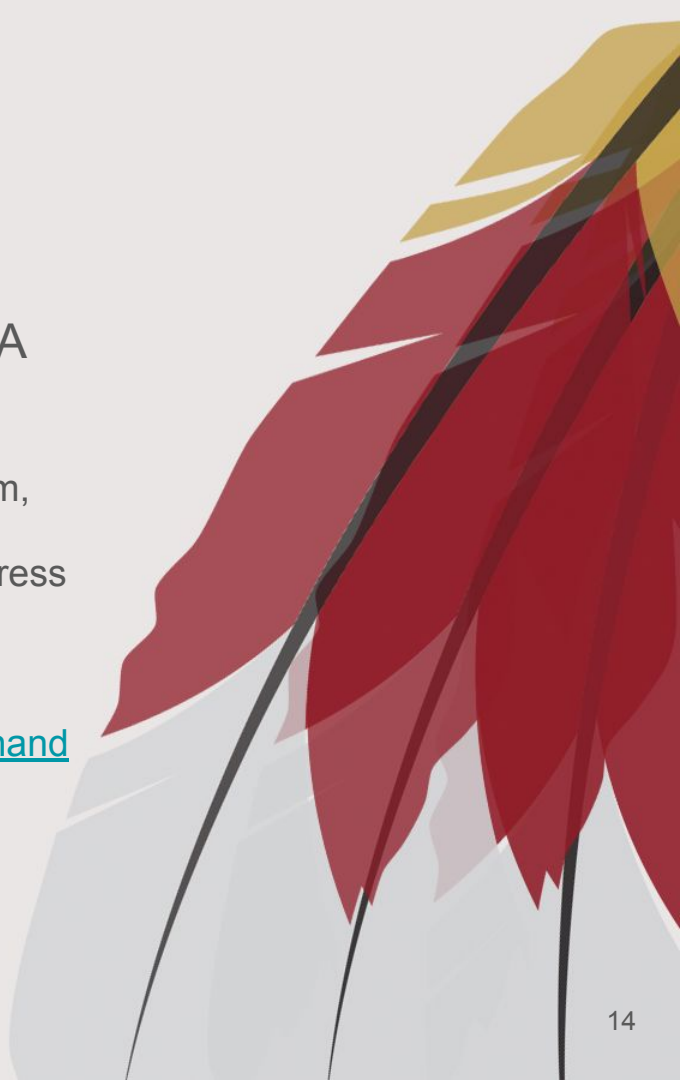
- NASA STEM Gateway Registration
- Webinars
 - *Mentor, "Proposal, Budget, and Design Review", Payload, Project Management, RockSim, Gateway Project Management, Avionics/Altimeters, Launch Operations*
- FNL Office Hours
 - Dates/Times are listed in the handbook and on the website
- New Handbook Appendices providing support and guidance on FAA Drone Requirements
- TRA/NAR Mentor Requirement
- RockSim submission required – all teams – each cycle
- Reimbursement Process
- New Awards
 - Gateway Challenge





NASA STEM Gateway

- New requirement from NASA that all education program participants must register within the NASA STEM Gateway system
 - Requirement for competitors to create a profile
 - You only need to create/update a profile in the system, we will handle linking it to FNL
 - The FNL application has a field that asks for the email address you used to create a profile in the system
 - A full walkthrough on creating a profile is available in the competition handbook:
 - <https://spacegrant.carthage.edu/live/files/6245-fnl24handbook92923pdf>
 - Link to the NASA STEM Gateway system:
 - <https://stemgateway.nasa.gov/public/s>





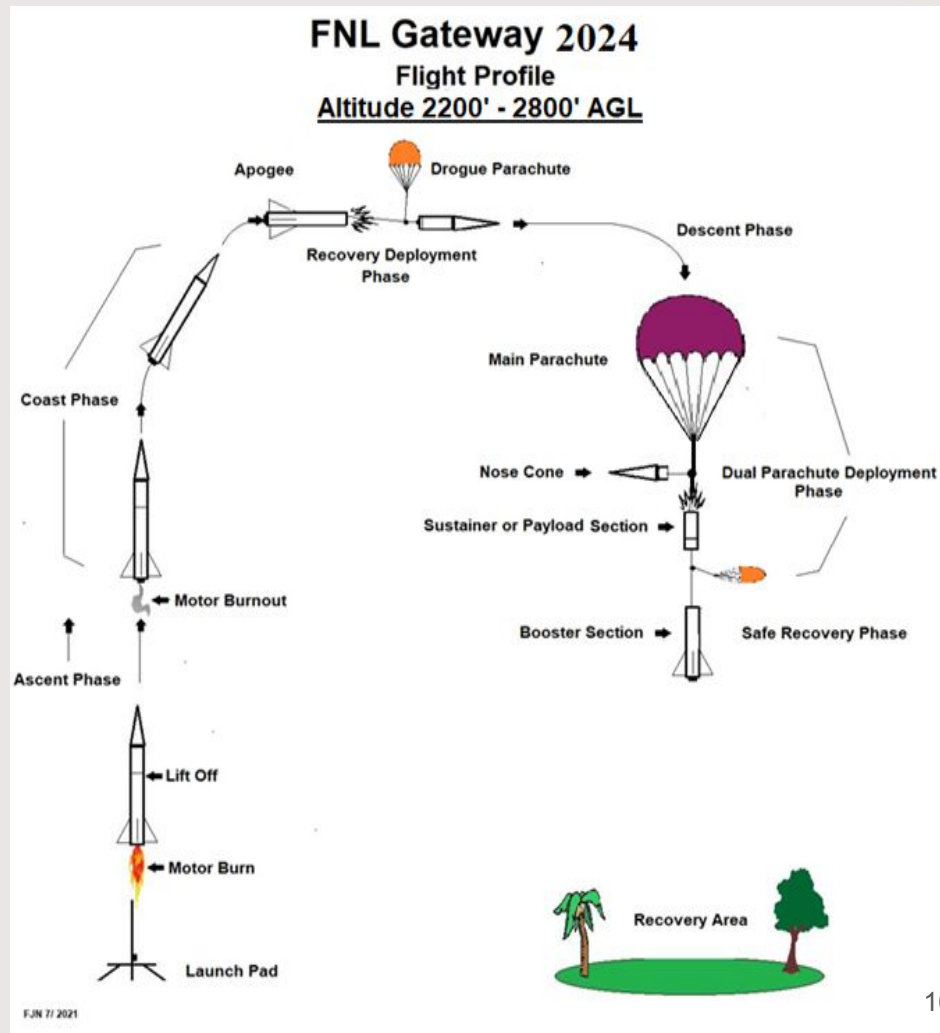
Challenge Levels

- Challenges build off each other
 - Gateway \Rightarrow Moon \Rightarrow Mars
- FNL website now has video series of instructional videos and webinars
<https://spacegrant.carthage.edu/first-nations-launch/rocket-instructional-videoswebinars/>
- Only one competition motor provided per team



Gateway Challenge

- Teams shall design and construct a dual deploy high-power rocket from the following list of kits:
 - Loc Precision “YANK Iris”
 - Loc Precision “EZI 65”
 - Loc Precision “Mystic Buzz”
- Teams may customize their kit with special add-ons provided by the manufacturer
- Pyro energetics of Jolly Logic altimeter shall be used for main deployment recovery
- There is no payload/challenge associated with this challenge, with focus being on the safe and complete selection, simulation, procurement, assembly/fabrication, and flight of the kit rocket.
- The flight shall be stable and reach an apogee between 2200' - 2800' AGL.





Gateway Challenge

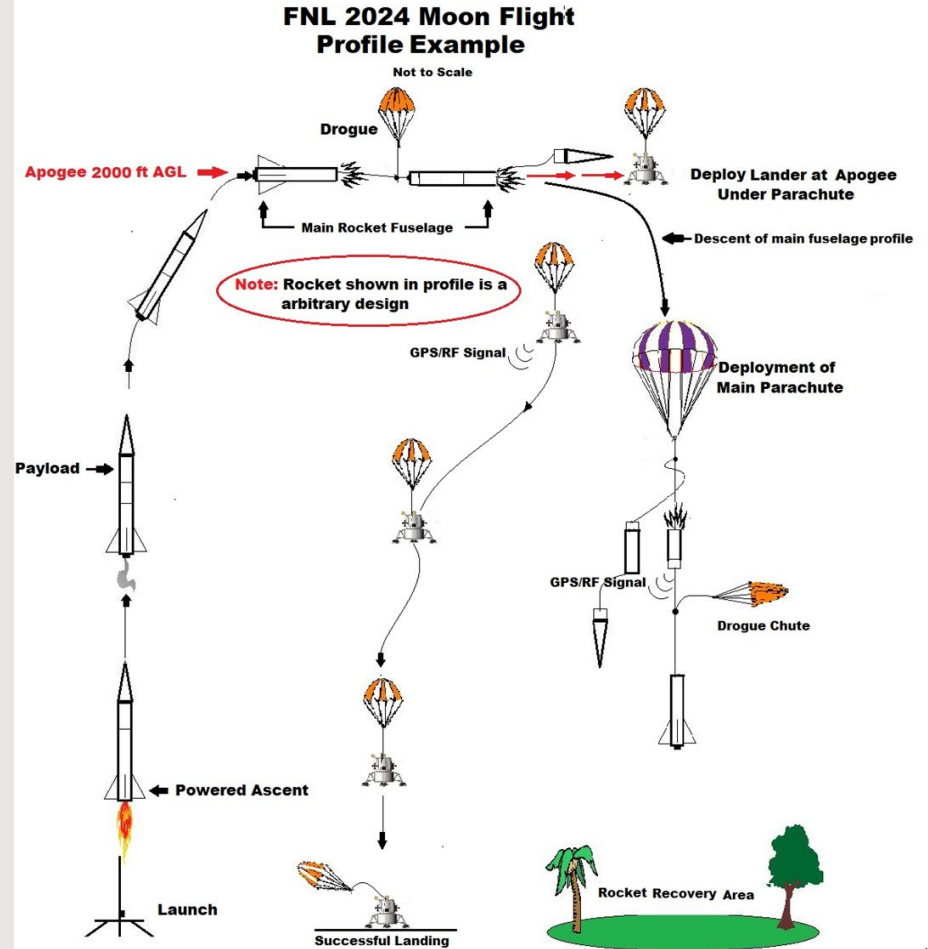
- When ordering your kit, make sure to include the following components:
 - E-bay module
 - 38mm motor adapter
- Two motors have been preselected per kit





Moon Challenge

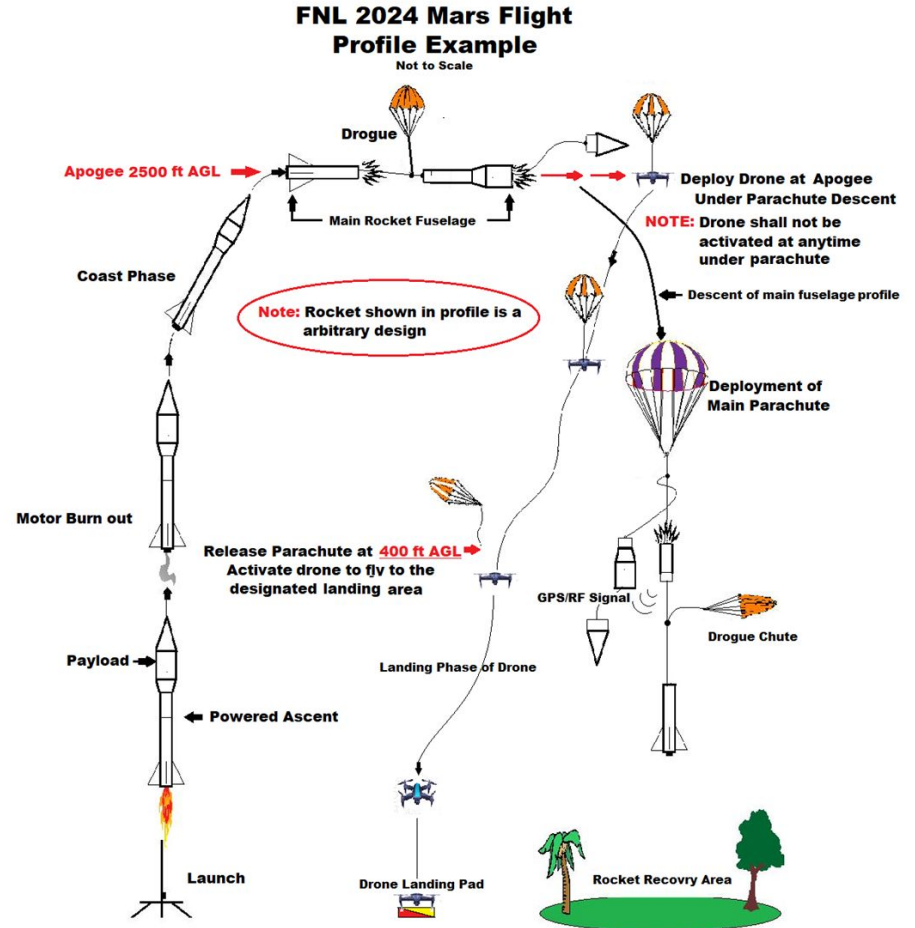
- Teams shall design, test, and fabricate a rocket that will air deploy a lander with a fabricated retractable payload chassis at apogee.
- The payload chassis must be equipped with a recovery device (streamer, parachute), camera, and GPS System/tracking device (RF, audible).
- The rocket flight shall be stable and reach an apogee of 2000' AGL.





Mars Challenge

- Teams are required to design, test, and fabricate a rocket that will air deploy a drone with a fabricated retractable air frame payload with size and weight limitations designed to deploy at apogee and return safely to the ground under control.
- The drone payload must descend under drone parachute until it reaches 400' AGL, wherein the drone parachute will release and a TRUST certified drone pilot will pilot the drone to a predetermined landing zone.
- The rocket flight shall be stable and reach an apogee of 2500' AGL.



Safe and Successful Flight

- Safe Flight must achieve:
 - Launch
 - Stable, vertical flight during ascent
 - Recovery system(s) must successfully deploy
 - Rocket must be recovered in flyable condition





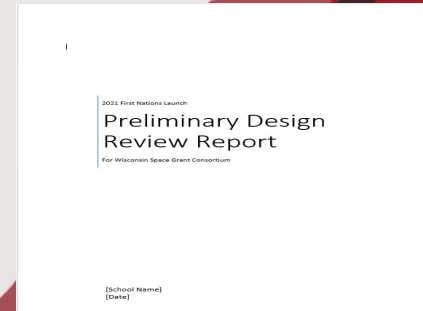
Competition Criteria (All Teams)

- All teams must follow all requirements of the Competition Handbook- the following is a subset of those requirements:
 - All projects during the construction process must have a minimum of one (1) scheduled virtual inspections with the designated safety officer (TBA)
 - All projects must be 90% constructed and ready to fly two (2) weeks prior to launch day
 - 90% = Airframe, motor mount, fins, payload airframe, couplers, bulkheads, should be permanently attached.
 - All projects must be designed to enable the motor deployment charge as a backup recovery system at apogee.
 - All final competition projects must have a documented flight/stable RockSim simulation profile.
 - Photographs are required during the construction of the motor mount and fin fillet assembly process to ensure proper construction techniques has been adhered.
 - All projects must have an aero-dynamic design. No odd rocs. Note: No flying pyramids, saucers or spools.
 - The "Center of Pressure" (CP) and the "Center of Gravity" (CG) must be indicated on rocket.
 - **Quality and timely completion of program milestones** (see Program Milestones section in handbook)
 - **Success of competition flight**
 - **Recorded altitude of competition flight**



Scoring Overview (Moon/Mars)

- 5 Written Reports are due:
 - Proposal, PDR, CDR, FRR, PLAR
 - Each report carries equal weight
 - Each report builds on previous reports
- 2 Virtual Presentations w/judges
 - In-time feedback (one week prior to next report due date)
- Flight and payload performance are scored
- Late reports are docked 20% per day
 - Due date is 11:59 CST / CDT (see Calendar)
- Outreach effort
 - Up to 10 bonus points





Written Design Reviews (Moon / Mars)

- **Communicate the engineering and design effort involved**
 - Analysis of predicted performance (compare actual)
 - Temporary RockSim V9 – TARC Temporary License (Exp. Aug 31) - \$20
 - [https://www.apogeerockets.com/Rocket Software/RockSim Educational TARC](https://www.apogeerockets.com/Rocket_Software/RockSim_Educational_TARC)
 - TARC Team Number: FNL24_(Your team's award #)
 - SHOW the design and construction as it progresses (pictures, diagrams, etc.)
- **Reports are due when posted on Competition Handbook calendar**
 - Reports = 75% of overall score
- **A Report Template (MS Word) is provided for each report**
 - Link to Report Templates are found on the WSGC Website
 - <https://spacegrant.carthage.edu/first-nations-launch/rubric/>
- **Design Review Development Webinar (optional) – Nov 7, 2023**
- **Gateway Teams do not submit reports**





Fly Sheets (All Teams)

- Teams are required to submit a flysheet at first 4 cycles
- Proposal, PDR, CDR, FRR
 - The template can be found on the FNL Website under 'Report Templates and Scoring Rubrics'
 - <https://spacegrant.carthage.edu/first-nations-launch/rubric/>
- The Flysheet is a summary of the technical specifications of your rocket / payload
- Fill out the Flysheet after your report is complete
 - Fill as much as you can at each cycle, from info in your report
 - You may not understand much at Proposal, but will have a complete sheet at FRR
 - If you don't understand a specification – ask
 - If you don't have a specification, leave it blank
 - We don't expect all specifications at the Proposal



Flysheets Example (All)

Milestone Review Flysheet 2022-2023			
Institution		School	
Milestone		Proposal	
Vehicle Properties			
Manufacturer / Kit (if applicable)			
Total Rocket Length (in)			
Airframe Diameter (in)			
Gross Lift Off Weight (lb)			
Airframe Material(s)			
Fin Material and Thickness (in)			
Motor Properties			
Motor Brand/Designation			
Max/Average Thrust (lb)			
Total Impulse (lbf-s)			
Mass Before/After Burn (lb)			
Liftoff Thrust (lb)			
Motor Retention Method			
Stability Analysis			
Center of Pressure (in. from nose)			
Center of Gravity (in. from nose)			
Static Stability Margin (on pad)			
Thrust-to-Weight Ratio			
Rail Size/Type and Length (in)			
Rail Exit Velocity (ft/s)			
Ascent Analysis			
Maximum Velocity (ft/s)			
Maximum Mach Number			
Maximum Acceleration (ft/s ²)			
Target Apogee (ft)			
Predicted Apogee (From Sim.) (ft)			
Payload Deployment			
Location: Air / Ground (if applicable)			
Altitude of Deployment (if applicable)			
Recovery System Properties - Recovery Electronics			
Primary Altimeter (Make/Model)			
*Secondary Altimeter (Make/Model)			
Switch Type/Make/Model			
Rocket Locator (Make/Model)			
*Additional Locators (if applicable)			
Recovery System Properties - Drogue Parachute			
Manufacturer/Model			
Size or Diameter (in or ft)			
Primary Altimeter Deployment Setting (ft)			
*Secondary Altimeter Deployment Setting (ft)			
Velocity at Deployment (ft/s)			
Recovery Harness Material, Size, Type (ex. 1/2 in. tubular nylon or 1 in. flat Kevlar strap)			
Recovery Harness Length (ft)			



Virtual Design Reviews (All Teams)

- Summarize and present your written design report
- A PowerPoint template is provided for each Virtual Review
 - Links to virtual review templates are found in the WSGC Website
 - <https://spacegrant.carthage.edu/first-nations-launch/rubric/>
- Every team member should participate during the presentation.
 - The presentation is limited to 20 minutes
 - Teams present report (8-10 minutes)
 - Judges and Tripoli Rocketry Association member will ask questions about your design at the end of your presentation (3-5 minutes)
- Each team given a presentation slot based on Judge's schedule.
 - It will be the team's responsibility to be in attendance



Flight Readiness Review

- Similar to your Virtual Design Reviews – except in-person - summarize and present your entire First Nations Launch experience and present your as-built rocket and payload
- A PowerPoint template is provided for presentation
 - Link to Launch Weekend Presentation template is found in the WSGC Website
 - <https://spacegrant.carthage.edu/first-nations-launch/rubric/>
- Every team member should participate during the presentation
 - The presentation is limited to 15 minutes (6-8 minutes for your team to give the presentation, 3-5 minutes for judges and questions and 5 minutes for scoring).
- Judges only will ask questions, following presentation (3-5 minutes). If time allows there may be additional questions from the audience.
 - Consider documenting your project with video or picture logs, using this information to compile your presentation.



Competition Scoring (Mars/Moon)



Competition Proposal	Written Report	5 pts.	75 pts overall
Preliminary Design Review (PDR)	Written Report	15 pts.	
PDR Presentation w/ judges	Virtual Presentation	5 pts.	
Critical Design Review (CDR)	Written Report	15 pts.	
CDR Presentation w/judges	Virtual Presentation	5 pts.	
Flight Readiness Review (FRR)	Written Report	15 pts.	
FRR Virtual Safety Inspection	Virtual Presentation	5 pts.	
Post-Launch Assessment Review Report (PLAR)	Written Presentation	10 pts.	
Launch Weekend Oral Flight Readiness Presentation		5 pts.	5 pts
Launch Weekend- Mission Performance		10 pts.	20 pts overall
Launch Weekend- Challenge		10 pts.	
TOTAL		100 pts	
Conduct an Education Outreach Project			Up to 10 pts
Submit Education/Public Outreach Form			
BONUS			

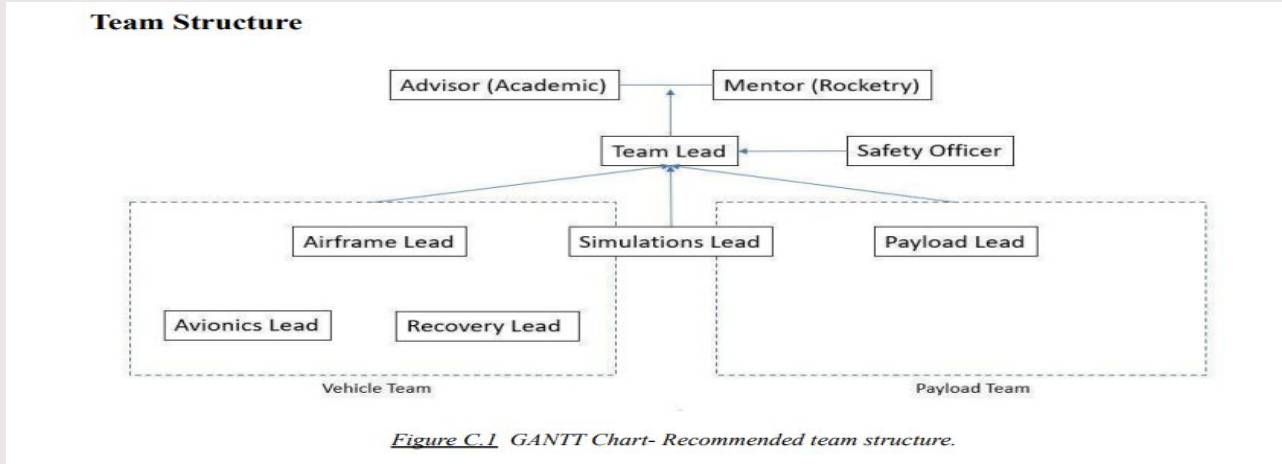
Submissions received after 11:59 pm CST on the due date will receive a deduction of 20% for each day they are late.



Competition Awarded Prizes

- **Grand Prize Award** \$3000 w/invitation to a NASA Center
- **2nd Place** \$2000
- **3rd Place** \$1000
- **Aesthetic Award** Team whose rocket has the most innovative and professional appearance
- **Team Spirit Award** Team chosen by their peers as the team that shows interactive spirit, helpfulness, and cooperation.
- **Altitude Award** Team whose actual apogee is closest to the predicted apogee in the Flight Readiness Report.
- **Judges Award** Team chosen by the judges as the team who met the goals of the program and exemplified hard work and determination
- **Next Step Award** Up to \$15000 Project/Team Travel Award w/invitation to Student Launch at Marshall Space Flight Center and/or RockOn! at Wallops Flight Facility
- **Outreach Award** \$500
- **Patch Design Award** \$100
- **Team Advisor Stipend** Up to \$1000 (Teams must meet the conditions of participation)
- **Top Advisor** Awarded to an advisor or co-advisor that equips, encourages, and empowers their team to compete with confidence and capabilities that lead to next step opportunities
- **Top Team Lead** Awarded to the team lead that fulfills their role with excellence
- **Rookie Team** Awarded to a new team that completes all phases of the rocket competition with determination and perseverance.
- **Gateway Challenge** Awarded to top performing Gateway team

First Nations Launch Teams



- 4-6 members per team on average
- Advisor
- Meetings/Telecons for assistance, maintain student driven project
- New schools/new advisor: Can be paired up with a veteran advisor
- Team Lead: Meetings/Telecons for assistance
- Team Lead Responsibility: Communication and document submission



Team Recruitment

How do we get students to participate and be engaged this year?

- Coordinate 5-10 minute presentations in classrooms and club meetings
- Hold a virtual recruiting event
 - Max 20 minute presentation
 - Invite FNL alumni (from your institution or another returning team)
- Reach out to other faculty for assistance, ask that they share recruiting emails
- Tap into new applicant pools
- Use the excitement of the L2L Workshop to get Level 1 certification
- Share other ideas in the chat!





Training Video Series

- <https://spacegrant.carthage.edu/first-nations-launch/rocket-instructional-videoswebinars/>
- Overview
- Avionics
- Recovery Systems
- Rocket Assembly
- RockSim
- Range and Motor Safety





Launch 2 Learn (L2L): Introductory Rocket Workshop

In-Person @ Carthage College (max 15 participants)

- Recommended for Gateway Challenge/New Teams
 - Up to three individuals maximum per school (one advisor, two students)
 - Travel, lodging, and most meals are provided
 - Workshop Materials provided:
 - Rocket kit, motor, and Tripoli Rocketry Association Level 1 Certification (pending successful certification launch)

Virtually (max 30 participants)

- January 19-20, 2024
 - Request to participate due December 18, 2023
- Up to three individuals maximum per school (one advisor, two students)
- Rocket kit and supplies provided by FNL
- Motor and Tripoli Rocketry Association Level 1 Certification supplies at TRA Certification Launch

REGISTER for the L2L Workshop:

<https://spacegrant.carthage.edu/first-nations-launch/launch-2-learn-rocket-certification-workshop>





Outreach

- One goal of First Nations Launch is to promote science, technology, engineering, and math (STEM) fields through educational opportunities throughout the United States.
 - [Outreach Form](#)



Team Scheduling Guidance

- Create a project schedule early on (can be a Gantt chart, excel spreadsheet or similar) to meet report deadlines
- Schedule will assist with having a safe and successful flight
- Choose a schedule that works best for the entire team (simple or detailed)
- Update the project schedule regularly so you can anticipate any schedule issues early on
- Include concept phase, preliminary phase, design phase, flight readiness, post launch
- Details may include: purchase deadlines, build deadlines, report deadlines
- Project Management Webinar – November 21, 2023



Launch Weekend April 26-28, 2024

- Thursday, April 25, 2024
 - Teams Arrive in Wisconsin
- Friday, April 26, 2024
 - Welcome Breakfast/Competition Kick-off, Rocket Fair, Motor Build Workshop, Breakout Sessions, Final Safety Inspections, Oral Presentations
- Saturday, April 27, 2024
 - Launch Day @ Richard Bong Recreational Park
 - Closing Banquet @ Carthage College
- Sunday, April 28, 2024
 - Rain Date, Certification Launches @ Richard Bong Recreational Park





Competition Weekend

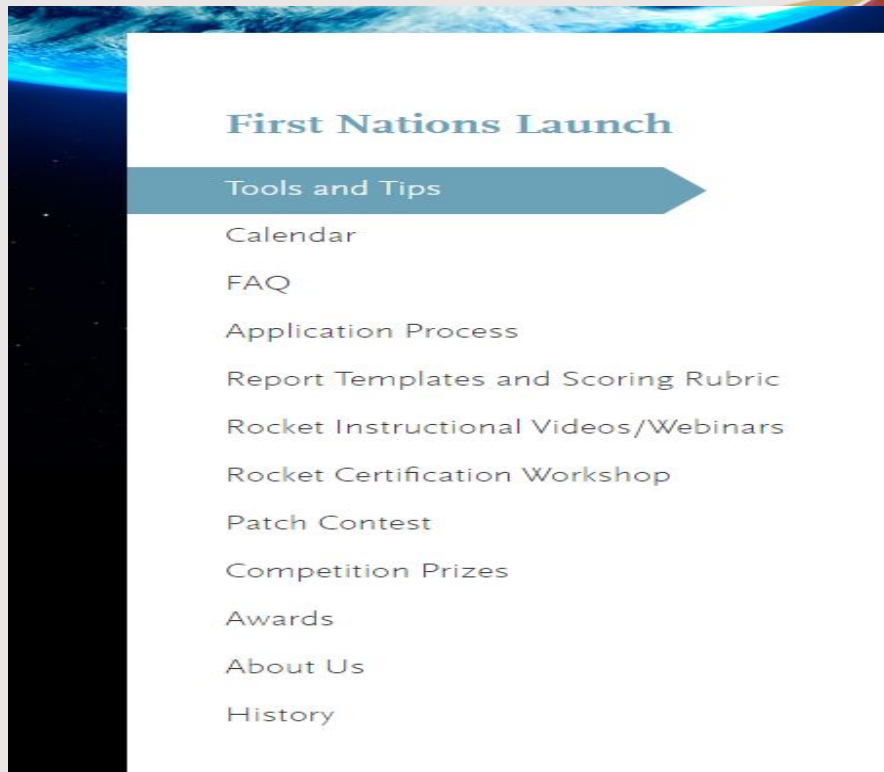
- Welcome Breakfast
 - One team to host the icebreaker event
 - ??? - 2024
 - Northern Arizona University - 2023
 - University of Hawaii at Manoa - 2022
 - College of Menominee Nation - 2019
- Special Guests
 - Bret Benally Thompson - AISES Tribal Elder
 - Astronaut John Herrington
 - Professionals leading breakout sessions
- Motor Build Workshop
 - 99% Ready to Fly - Limit to Minor Fixes
 - Half-day workshop
- Breakout Sessions
 - Special Topics
 - 30-60 minutes presentations
 - Special Topics
- Rocket Fair
 - Present your rocket as a team to other teams, judges, and special guests





FNL Website

- Tools and Tips
- Calendar
- FAQ
- Application Process
- Report Templates and Scoring Rubric
- Rocket Instructional Videos/Webinars
- Rocket Certification Workshop
- Patch Contest
- Awards
- About Us
- History





Tools and Tips

- FNL Resources
 - Team Bio Form
 - Team Roster and Lodging Form
- Reimbursement Request Forms
 - Project and Travel Expense Reimbursement Forms
 - Project and Travel Expense Form
 - Instructions
- Travel Guidelines
- First Nations Launch Home Page
 - Competition Handbook
 - Calendar
- Link for forms and additional information
<https://spacegrant.carthage.edu/first-nations-launch/tools-and-tips/>
- General Resources:
<https://spacegrant.carthage.edu/fnl/faq/>

First Nations Launch

Tools and Tips

Calendar

FAQ

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WSGC NEWS

NASA FUNDING OPPORTUNITY: TEAM II

NASA's Teams Engaging Affiliated Museums and Informal Institutions (TEAM II) program has selected an additional informal education organization to help inspire the next generation of engineers and scientists.

Tools and Tips

FNL Resources

Webinars & Presentations

Reimbursement Request Forms

WSGC Launch 2 Learn Workshop 2022

WSGC Launch 2 Learn Workshop 2021

Workshop Resources

Rocket Resources

Logos

Vendors



Team TRA / NAR Mentors

- Each team requires (can be the same individual)
 - Faculty Advisor (usually non-technical)
 - Certified, active TRA / NAR Rocketry Mentor (experienced in HPR)
- Mentor must be
 - Experienced
 - Active TRA or NAR member (membership number needed)
 - Certified at or above the level of team rocket (L2 or higher)
 - Local to the team with access to a certified launch site
 - Mentor does not need to attend Launch Weekend
- The Advisor Liaison will help teams find a local Mentor
 - Use the TRA / NAR websites to find local clubs/contacts



WSGC Reimbursement

Two Options:

- The FNL team will submit reimbursement requests to WSGC through the University/College.
 - Quarterly Invoice by Institution
- OR
- Individuals will submit reimbursement requests to WSGC for supply and travel expenses.
 - March 4, 2024 and May 13, 2024 deadlines
 - Submit digital receipts and reimbursement forms per the reimbursement instructions.

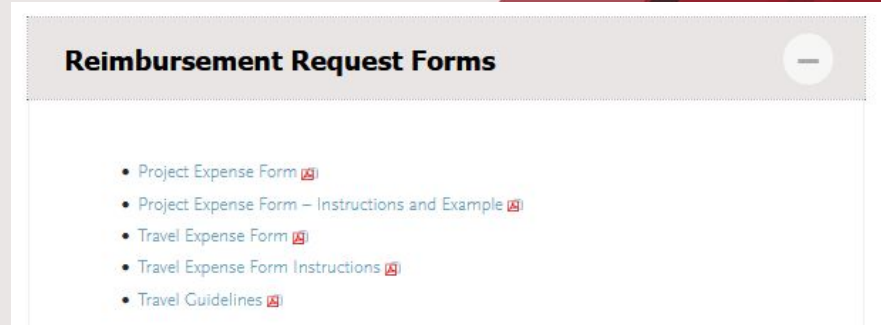


Submitting Reimbursement Requests

Reimbursement request forms available on "Tools & Tips" under "Reimbursement Request Forms"

[Tools and Tips | Wisconsin Space Grant Consortium | Carthage College](#)

- [Project Expense Form](#)
- [Project Expense Form Instructions](#)
- [Travel Expense Form](#)
- [Travel Expense Form Instructions](#)
- [Travel Guidelines](#)





Submitting Reimbursement Requests

- Project reimbursement form
- Travel reimbursement form
- Updated reimbursement forms
 - .655 Mileage
- Incomplete information will be delayed in being submitted for reimbursement
- Email reimbursement forms, along with digital receipts, to WSGC Accounts
wsgc.accounts@carthage.edu

TRAVEL EXPENSE FORM

To receive reimbursement, this form must be submitted by each team member who made a purchase.
NOTE: The team leader cannot be reimbursed for purchases made by team members and then distribute the money.

Email Form and Receipts To: WSGC Accounts
wsgc.accounts@carthage.edu
(262) 551-6054

Please Make Check Payable To: Name:
Address line 1:
Address line 2:
City, State, Zip:

Travel Start Date: Travel End Date: Team Institution:

Travel Purpose:

Receipt Category	Description	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Line Total
1	Mileage Total								
	miles x 0.655								\$ 0.00
2	Air/Rail Fare								\$ 0.00
3	Baggage Fee(s)								\$ 0.00
4	Rental Car								\$ 0.00
5	Uber/Lyft/Taxi/Metro								\$ 0.00
6	Parking/Tolls								\$ 0.00
7	Misc. Ground Transport								\$ 0.00
8									

PROJECT EXPENSE FORM

To receive reimbursement, this form must be submitted by each team member who made a purchase.
NOTE: The team leader cannot be reimbursed for purchases made by team members and then distribute the money.

Email Form and Receipts To: WSGC Accounts
wsgc.accounts@carthage.edu
(262) 551-6054

Please Make Check Payable To: Name:
Address line 1:
Address line 2:
City, State, Zip:

Team Institution:

Rcpt #:	Date	Vendor/Store	Description	Amount



Patch Contest

- FNL participants can enter
- Individuals or Groups
- Details announced in November
- Due in February 19, 2024



Janna Steen, Nueta Hidatsa Sahnish College
2020 Winning Design
2020 Theme: Moon Capsule and Moon Lander Vehicle



Alex Armendariz, Cal Poly Pomona
2021 Winning Design
2021 Theme: Moon Warning Sensor System



Peyton Meader, Massachusetts Institute of Technology
2023 Winning Design
2023 Theme: Lightweight Rocket Fabrication



Evie Clark, University of Colorado, Boulder
2022 Winning Design
2022 Theme: Moon GPS and Mars Cold Gas Thruster

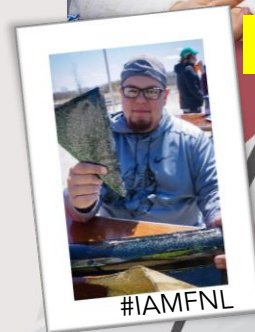


#IAMFNL

- Send #IAMFNL a 30-second video clip
- Send #IAMFNL photos
- Tag Wisconsin Space Grant Consortium in videos and photos
- Tell your story about how FNL has made a difference
- Be featured during launch weekend



#IAMFNL



#IAMFNL



Any Questions?

