TEA Texas Education Agency ®

NOGA ID

Authorizing legislation | **General Appropriations Act, Article III, Rider 73, 87th Texas Legislature**

This LOI application must be submitted via email to **loiapplications@tea.texas.gov.**

The LOI application may be signed with a digital ID or it may be signed by hand. Both forms of signature are acceptable.

TEA must receive the application by **11:59 p.m. CT, February 8, 2022**.

Application stamp-in date and time

Grant period from | **March 21, 2022-June 2, 2023**

Pre-award costs permitted from | **Not Permitted**

Required Attachments

1. Excel workbook with the grant's budget schedules (linked along with this form on the TEA Grants Opportunities page)

Amendment Number

Amendment number (For amendments only; enter N/A when completing this form to apply for grant funds):

Applicant Information

Organization | Learning Undefeated, Inc. | CDN | N/A | Campus | N/A | ESC | NA | DUNS | 847996188

Address | 9841 Washingtonian Blvd. Suite 330 | City | Gaithersburg | ZIP | 20878 | Vendor ID | 32067507510

Primary Contact | Jennifer Colvin | Email | jen@learningundefeated.org | Phone | 410-570-8814

Secondary Contact | Alejandro Cardemil | Email | acardemil@learningundefeated.org | Phone | 240-552-9313

Certification and Incorporation

I understand that this application constitutes an offer and, if accepted by TEA or renegotiated to acceptance, will form a binding agreement. I hereby certify that the information contained in this application is, to the best of my knowledge, correct and that the organization named above has authorized me as its representative to obligate this organization in a legally binding contractual agreement. I certify that any ensuing program and activity will be conducted in accordance and compliance with all applicable federal and state laws and regulations.

I further certify my acceptance of the requirements conveyed in the following portions of the LOI application, as applicable, and that these documents are incorporated by reference as part of the LOI application and Notice of Grant Award (NOGA):

☒ LOI application, guidelines, and instructions

☒ General and application-specific Provisions and Assurances

☒ Debarment and Suspension Certification

☒ Lobbying Certification

Authorized Official Name | Alejandro Cardemil | Title | Vice President, Development

Email | acardemil@learningundefeated.org | Phone | 240-552-9313

Signature | **Alejandro Cardemil**
Digitally signed by Alejandro Cardemil
Date: 2022.02.08 10:21:44 -05'00'
| Date | 02/08/2022

Shared Services Arrangements

☐ Shared services arrangements (SSAs) are NOT permitted for this grant.

Statutory/Program Assurances

The following assurances apply to this program. In order to meet the requirements of the program, the applicant must comply with these assurances. Check each of the following boxes to indicate your compliance.

☒ 1. The applicant provides assurance that program funds will supplement (increase the level of service), and not supplant (replace) state mandates, State Board of Education rules, and activities previously conducted with state or local funds. The applicant provides assurance that state or local funds may not be decreased or diverted for other purposes merely because of the availability of these funds. The applicant provides assurance that program services and activities to be funded from this LOI will be supplementary to existing services and activities and will not be used for any services or activities required by state law, State Board of Education rules, or local policy.

☒ 2. The applicant provides assurance that the application does not contain any information that would be protected by the Family Educational Rights and Privacy Act (FERPA) from general release to the public.

☒ 3. The applicant provides assurance to adhere to all the Statutory and TEA Program requirements as noted in the 2022-2023 Mobile STEM Laboratory Grant Program Guidelines.

☒ 4. The applicant provides assurance to adhere to all the Performance Measures, as noted in the 2022-2023 Mobile STEM Laboratory Program Guidelines, and shall provide to TEA, upon request, any performance data necessary to assess the success of the program.

☒ 5. The applicant assures that any Electronic Information Resources (EIR) produced as part of this agreement will comply with the State of Texas Accessibility requirements as specified in 1 TAC 206, 1 TAC Chapter 213, Federal Section 508 standards, and the WCAG 2.0 AA Accessibility Guidelines.

Mobile STEM Laboratory

☒ 6. The applicant will provide a Mobile STEM Laboratory that is fully equipped with a power source, technology, equipment, consumables, and lessons for educators to use with their students. Districts shall not be expected to provide any supplies (including perishable items) to complete activities in the Mobile STEM Laboratory or supply power for the Mobile STEM Laboratory.

☒ 7. The applicant assures a dedicated staff member will travel with the Mobile STEM Laboratory to lead activities with the students and model how a STEM lesson is facilitated. The staff member shall model research based pedagogy and best practices.

Data Collection

☒ 8. The applicant will develop a survey for the district/campus to complete that includes but is not limited to information about the students who used the labs, including student demographic information, gender, and effectiveness of the mobile lab.

☒ 9. The applicant provides assurance a data collection system will be developed to analyze the data collection and generate monthly reports including survey information and highlights from each visit.

Safety

☒ 10. The applicant assures proper safety measures will be in place to ensure safety while students are working in the Mobile STEM Laboratory including COVID-19 protocols aligned to the CDC and district's policies.

☒ 11. The applicant assures safety equipment will be provided for activities according to the Texas Safety Standards Laws and Rules. For more information, please click here: https://tea.texas.gov/sites/default/files/Safety%20Laws%20and%20Rules%202016.pdf

Activities

☒ 12. The applicant assures the Mobile STEM Laboratory will contain STEM activities for K-8th grade that integrate content knowledge aligned to the TEKS and approved by TEA prior to use.

Program Assurances cont'd

Activities (Continued)

☒ 13. The applicant assures all STEM activities will include the engineering design process so that students are designing a product or process during the activity and will not focus on content in silos. Activities must be approved by the TEA prior to use.

☒ 14. The applicant assures the length of activities for K-2 will be at least 30 minutes and 3-8 will be 45-60 minutes.

☒ 15. The applicant assures activities, materials and a flyer will be provided to encourage campuses to host a community night where families and community members are invited to visit and engage in a community design challenge using the Mobile STEM Laboratory.

Capacity

☒ 16. The applicant assures the Mobile STEM Laboratory will serve all 20 educational regions during each year of operation.

☒ 17. The applicant assures that each region will be allowed to have access to the Mobile STEM Laboratory at least one time during the grant period to allow for maximum coverage of the state.

☒ 18. The applicant assures the Mobile STEM Laboratory will be stocked with enough materials and equipment for at least 25 students to participate at the same time and extra supplies available so that activities can be restocked and used for the entire grade level. The applicant will use AskTED (http://mansfield.tea.state.tx.us/tea.askted.web/Forms/Home.aspx) and review the enrollment data to ensure the Mobile STEM Laboratory is stocked with enough supplies to accommodate the district being served. The number of students served can be adjusted based on CDC guidelines for social distancing.

Marketing/Communication

☒ 19. The applicant will provide to the TEA a marketing plan to spread awareness of the Mobile STEM Laboratory throughout the state including how information will be distributed to districts, examples of brochures, flyers, and other marketing materials, and how rural and high needs districts will be targeted. The marketing plan will be presented to the TEA for approval.

☒ 20. The applicant assures a dedicated website to the Texas Mobile STEM Laboratory will be available for districts to apply for access to the Mobile STEM Laboratory.

☒ 21. The applicant assures an application process as well as an application will be developed for districts to apply to access the Mobile STEM Laboratory. The application must request information that will help to the determine needs such as a high number of students who are living in poverty, English learners, or who live in a rural area.

☒ 22. The applicant assures they will communicate with the TEA the delivery locations and point of contact at each location prior to the program start date to ensure all regions in Texas are being served.

☒ 23. The applicant will provide the TEA a monthly report including highlights from each visit and pictures that will be used to spotlight the Mobile STEM Laboratory in the state STEM newsletter.

☒ 24. The applicant assures all students will sign permission slips to participate in STEM activities and have signed waivers for pictures of students that are shared with the TEA.

Cost

☒ 25. The applicant assures the Mobile STEM Laboratory will be provided to districts at no cost. Title 1 schools that have a high number of students living in poverty, who are English learners, or who live in a rural area shall have priority placement in the Mobile STEM Laboratory.

Qualifications and Experience for Key Personnel

Outline the required qualifications and experience for primary project personnel and any external consultants projected to be involved in the implementation and delivery of the program. Include whether the position is existing or proposed.

Title and Responsibilities of Position	Required Qualifications and Experience
Jennifer Colvin - Chief Innovation Officer - Project Director/Administrator/P.I.; will direct the overall project throughout the duration of the contract Desurae Matthews & Katie Askelson - Education Coordinators; Mobile Lab Instructors James Hong, M.Ed. - Instructional Designer	Jennifer has 20+ years experience developing and delivering science education programs for students and professional development workshops for educators, including seven mobile laboratory programs. Desurae and Katie are the current Texas Mobile STEM Lab instructors and James co-developed the curriuclum with TEA in 2020.

TEA Program Requirements

1. Describe an understanding of prior work in STEM and research in running a Mobile STEM program(s). Specifically describe how the tasks will be performed and identify potential problems in the conduct of the project and methods to identify and solve such problems.

Since 2003, Learning Undefeated has successfully operated the most expansive and innovative mobile STEM education program in the country, delivering robust, standards-aligned experiences in a compelling learning environment that travels to schools in under-resourced communities. Learning Undefeated attributes its success to dynamic elements central to our work: leading-edge STEM education programs that meet students where they are; successful track record with proven results; existing and trusted relationships with K-12 schools and educators; centering gender and racial equity, including embedding a racial equity perspective in our programs and organization to drive race equity among our partners, collaborators, and the communities we serve.

Learning Undefeated has partnered with TEA since 2020 to bring students and teachers the Texas Mobile STEM Lab. In its first year, which was heavily impacted by pandemic-related closures and restrictions, the Texas Mobile STEM Lab was able to serve more than 3500 students and 158 teachers at 21 schools in 16 of the Education Service Center (ESC) areas. The Texas Mobile STEM Lab will continue to serve new campuses across Texas each year. At least one campus from each of the 20 ESC regions will be selected each year. In addition, Learning Undefeated will work with campuses to encourage STEM Night events in conjunction with the mobile laboratory visit.

The largest challenge facing in-person programming is the ongoing COVID-19 pandemic. Learning Undefeated has successfully operated in-person programming during the pandemic by reducing class sizes, limiting shared materials between student groups, enhanced cleaning protocols, improved ventilation, and HEPA filtration. Virtual visit accommodations will be offered for schools who are unable or do not wish to participate in person.

2. Describe clearly, specifically, and as completely as possible, the methodology for carrying out the objectives and requirements of the Mobile STEM Laboratory as described in Program Guidelines.

The goal of the Texas Mobile STEM Laboratory is to increase the number of grade K-8 students who can engage in STEM design-based challenges aligned to the content they are learning in class and raise awareness for STEM careers. By meeting teachers and students where they are, mobile laboratories deliver compelling STEM instruction, supplies, and the excitement of an out-of-school experience statewide, bringing hands-on learning opportunities to school districts where field trips may be a challenge.

Learning Undefeated will serve a minimum of one K-8 school in each of Texas' 20 educational regions, for a total of 25 visits per school year. The program will provide the experiences, all equipment and supplies, and all instruction in the classroom and on the mobile laboratory at no cost to the school.

Learning Undefeated will leverage its partnership with TEA and network of Texas teachers and school, as well as the ESCs, to make schools and teachers aware of the 2022/23 and 2023/24 school year opportunities. Visit requests will be collected via the Texas Mobile STEM Lab website txmobilestem.org April 1 – May 31 for the following school year. School visits will start the fourth week of August and continue until May.

During the visit Learning Undefeated educators will present STEM activities both inside the classroom and on the mobile laboratory on a schedule developed with the participating teachers. In the classroom, Lab staff will lead students in the TEA approved engineering design challenges and model the STEM activities teachers can use in their own classrooms. Onboard the Lab, students will use augmented reality and game-based learning in an immersive learning environment to extend classroom learning and explorer STEM careers.

Learning Undefeated will work with campuses to encourage STEM Night events in conjunction with the mobile laboratory visit. STEM Nights will take place on the first or second night of the mobile laboratory visit. The STEM events will showcase local businesses related to STEM, tours of the Mobile Lab, and time for students' families to participate together in a hands-on STEM challenge. At least 15 STEM Nights will be planned each school year.

TEA Program Requirements (Cont'd)

3. Describe the project design, project activities, materials, and other products, services, and reports to be generated during the grant period and relate them to the stated purposes and specifications as described in the Program Guidelines.

Learning Undefeated will continue to offer the 10 Texas Mobile STEM Lab design challenges developed in 2020 with TEA (available at txmobilestem.org) via the mobile laboratory program. Handouts, presentation materials and other digital resources for teaching the activities will be maintained and available on the website.

Learning Undefeated will analyze feedback from educators who have used the Texas Mobile STEM Lab during the first two program years to revise any curriculum or operational procedures. Revised activities and procedures will be reviewed with TEA to offer feedback and final approval before use on the Mobile Laboratory.

In order to facilitate marketing of the program, Learning Undefeated will generate an annual marketing plan that includes one promotional flyer, two social media graphics, and pre-written copy for use in TEA's marketing outreach emails. Other materials are available upon request with sufficient notice.

To support the management and reporting of the project, Learning Undefeated will generate monthly and year end status reports that include student and school data, along with photos.

Formative and summative evaluations will be used to measure the impact of the program on teacher and student content knowledge, career awareness, and the engineering design process. Outcomes will be measured and evaluated using a variety of methods that may include classroom observation, focus groups, interviews, and pre/post surveys. Learning Undefeated will also collect campus-level administrator surveys to collect and track data on the reach of the program, including number of students served, demographics, and percentage of those that qualify as high need. Year end evaluation reports will be provided with results and analysis to TEA.

4. Describe the comprehensive project plan, which must serve each Educational Region of Texas. Include and clearly describe tasks, activities, major milestones, and products/projects as well as demonstrate the expertise, experience, and capacity to evaluate, develop, deliver, and curate specific instructional materials and resources for all aspects of the project.

Learning Undefeated will operate its Drop Anywhere Lab shipping container for the 2022/23 and 2023/24 Texas Mobile STEM Lab program years. The custom outfitted shipping container offers engaging, immersive, hands-on STEM experiences for students and teachers without leaving the school parking lot. The program will continue to offer the TEA-approved TEKS-aligned activities developed in summer 2020. The engineering design challenge activities are 45-minutes long for grades 1–8 and up to 30-minutes for grade K. Program evaluation and assessment will continue to measure the impact of the program on teacher and student achievement and satisfaction and mobile laboratory operations. Learning Undefeated will also collect and track data on the reach of the program, including number of students, teachers and campuses served, demographics of students and schools, and STEM Night participation.

All Texas public schools that offer classes for grades K-8 are eligible to request a visit. At least one school from every education service center region (ESC) will receive a visit each school year. Priority for visits will be given to schools in rural areas, demonstrating high economic need (majority student body that qualifies for free & reduced meals), those that have not yet had a Texas Mobile STEM Lab visit, and the quality of the response from a short answer question. Each visit will be up to one week long.

The Texas Mobile STEM Lab will provide all curriculum and supplies at no cost to schools. Curriculum and teaching resources used in the classrooms will be available on the Learning Undefeated website as for teachers to download and use. Learning Undefeated staff are also available for professional development related to the engineering design challenges, STEM, and the Texas Mobile STEM Lab at the request of schools and districts.

Once a school has been selected for the program, Learning Undefeated will notify the school to and confirm visit dates. Selected schools will receive a "Welcome Packet" about what to expect and visit preparation dates and deadlines. As each visit approaches, Learning Undefeated will conduct a virtual pre-visit meeting with each selected school to coordinate the logistics of the visit.

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TEA Program Requirements (Cont'd)

5. Provide evidence of running a data driven project. Include how previous projects have been adapted based on data analysis.

Formative and summative evaluations have been used to measure the impact of the Texas Mobile STEM Lab during its first two years of operations. Outcomes were measured using classroom observation and surveys from students, teachers, and campus administrators. Learning Undefeated also collects and tracks data on the reach of its programs, including number of students served, and percentage of those that qualify as high need.

The TEA Mobile STEM Lab first program year – albeit impacted by COVID-19 – should be considered a success. Students enjoyed the STEM activities and asked for more time to keep doing the activities or participate in new ones. Teachers and campus administrators were satisfied with their visits, but requested additional time for more students to participate and/or more fully engage with the experience. Teachers also reported improved confidence in implementing STEM activities in the future, either from the Texas Mobile STEM Lab curriculum or new activities that they create on their own. This suggests teachers are comfortable with the instructional model being demonstrated. Further iteration on activities and student survey items were implemented during the 2021/22 program year to better capture targeted goals.

Feedback also informed programmatic changes, including providing additional information for teachers and campus administrators during the pre-visits to better prepare, increasing classes to one hour when possible, and explaining more thoroughly the skills needed to perform certain activities. The largest critiques of the program have been teachers not feeling optimally prepared for a visit and needing more time for the lessons. Learning Undefeated now provides recordings of the pre-visits to schools so that if a teacher was unable to attend the pre-visit, they are able to view it afterwards. Additionally, teacher and administration surveys are reviewed more frequently to monitor operations feedback more closely and implement changes more quickly.

6. Provide a description of safety issues related to operating a Mobile STEM Laboratory. A safety plan must be attached to this application that includes current COVID-19 procedures aligned to the CDC (Centers for Disease Control) recommendations to assure the safety of Texas students while participating in the Mobile STEM Laboratory program.

Learning Undefeated reviews and monitors local and state health department, and other official guidance, to create protocols and procedures to operate our educational programming in a safe manner during the COVID-19 pandemic. Safety procedures will be regularly revisited throughout the school year to ensure they encompass the latest policies and recommendations. These guidelines are not meant to supersede guidelines provided by local or state governments. Additionally, Learning Undefeated will work with schools to follow any additional protocols their school finds necessary to keep students safe.

Other safety issues around the mobile laboratory involve laboratory and reagent safety, security measures around visitors, and emergencies, including weather, medical and student. Many safety issues aboard the lab are similar to those that schools face inside a standard classroom or school environment. Security measures and policies are used to identify individuals requesting to enter the vehicle and doors are locked from the outside. The laboratory team must also prepare for and work to prevent any discomfort students may experience in the unique, enclosed environment. To combat this, labs are designed to be well-ventilated, monitor air quality, allow easy access to entry and exit doors, and inform participants about what to expect prior to boarding. Laboratory safety and an understanding of the chemicals and reagents that are carried and transported aboard the lab should also be considered. All laboratory reagents are documented and accompanied with proper Material Safety Data Sheets (MSDS). The mobile laboratory also does not carry reagents above a Biosafety Level (BSL) 1 to limit the impact of any spills or accidents.

TEA Program Requirements (Cont'd)

7. Describe how community events will be hosted and how the Mobile STEM Laboratory can connect to local communities in addition to serving the students in the schools. Include a strategic plan for how regions will be selected for community events. At least 15 regions should have events unless COVID-19 prevents events from taking place due to safety. Each cancellation should be discussed with the Texas Education Agency.

A tremendous benefit that these Mobile STEM Laboratories provide is the opportunity to engage students, educators and community residents with hands-on experiential STEM learning and STEM career exploration in their schools and in their communities. Bringing this resource directly to a community further strengthens the impact of school programming, and eliminates obstacles many families have around transportation and access. There are a multitude of different ways in which the program can engage the general community in the program. Examples include:
• Local community events can be coordinated and facilitated with the Mobile STEM Lab on school campuses. Educators as well as local STEM professionals would have opportunities to share their work and career path, helping bring awareness to the work that they do.
• Invite students and their families to take a tour, meet STEM professionals and learn about STEM careers and pathways
• Students and their families will be given the chance to participate in a hands-on STEM challenge together.
Learning Undefeated will work with campuses to encourage a STEM Night event in conjunction with the mobile laboratory visit. Each STEM Night will be unique to each campus and mobile laboratory staff will work with schools to provide guidance and suggestions for the event. The STEM events will showcase local businesses related to STEM, tours of the Mobile Lab, and time for students' families to participate together in a hands-on STEM challenge. STEM Nights are optional for each campus and will require assistance from the school to invite the local STEM community. To keep operating costs within budget STEM Nights will be held on the school campus. STEM Nights will take place on the first or second night of the mobile laboratory visit. At least 15 STEM Nights will be planned each school year.

8. Describe the organization's current Mobile STEM Laboratory capacity. Include the number of Mobile STEM Laboratories the organization has, how they are transported, and how many students can be served with each mobile unit.

Learning Undefeated's six mobile laboratories have the capacity to serve 60,000 students per academic year. Learning Undefeated has three types of mobile laboratories in its fleet:

Lab	Format	Geographic Location(s)	Students Served Annually	Class Size
Drop Anywhere Lab	Shipping container	Texas	10,000	15
Drop Anywhere Lab	Shipping container	Louisiana	10,000	15
Drop Anywhere Lab	Shipping container	Mid-Atlantic	10,000	15
MXLab	Tractor trailer	Mid-Atlantic	10,000	42
MdBioLab	Tractor trailer	Disaster recovery	10,000	32
Explorer Lab	Bus	Mid-Atlantic	10,000	16

Transportation method:
+Drop Anywhere Labs are shipping containers that are transported on a rollaway trailer
+The Explorer Lab is a bus that is self-propelled and driven by a Class B professional driver
+The MdBioLab and MXLab are tractor trailers that require a Class A tractor for transport

Learning Undefeated will utilize the Drop Anywhere Lab for the 2022/23 and 2023/24 program years of the Texas Mobile STEM Lab program. The Drop Anywhere Lab is a custom-built shipping container that has its own onboard power, HVAC and water system and is wheelchair accessible. The lab offers an immersive technology-rich learning environment that uses augmented reality and game-based learning and transports resource carts for in-classroom learning. The lab also offers temporary science and technology teaching space when needed. A mobile laboratory instructor will present the Texas Mobile STEM Lab activities in classrooms to students alongside their teacher. At the same time, smaller groups of up to 15 students will participate in the 20-minute immersive learning experience onboard the mobile lab with another instructor.

Budget Narrative

Describe how the proposed budget will meet the needs and goals of the program, including for staffing, supplies and materials, contracts, travel, etc. If applicable, include a high-level snapshot of funds currently allocated to similar programs. Include a short narrative describing how adjustments will be made in the future to meet needs.

We are estimating the direct costs of the program to be $250,000 annually. The budget incorporates up to 25 weeks of lab visits to at least one school in each educational district, and incorporates 15 Community STEM Nights.

Payroll Costs (6100) Academic/Instructional staff includes two Mobile Lab Instructors (Teachers: 100% of 2 FTE). Program management and administration includes the Chief Innovation Officer (Project Director: 5% of 1 FTE), the Education Director (Project Coordinator: 5% of 1 FTE), and the Instructional Designer (5% of 1 FTE).

Professional and Contracted Services (6200) Contracted rollaway trailer drivers deliver Drop Anywhere Lab to each location ($1,505 per move).

Supplies and Materials (6300) Consumable supplies for engineering design activities include cups, glue sticks, tape, vibration motors, batteries, straws, pipe cleaners, string, paper, and bottles. Materials and printing covers costs for student/teacher handouts and other instructional materials. ($9,291)

Other Operating Costs (6400) This section includes local staff travel for instructors (mileage at $36,638 per year[$0.58/mile], lodging at $26,847 per year, and per diems at $11,722 per year[$52/day]) and is based on visits to each of the 20 educational districts. Cloud computing facilitates program and instruction management and includes subscriptions for internet, Dropbox, Airtable, and Office365. Cell phones are used by instructors in the field ($125 per month).

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An amendment must be submitted when the program plan or budget is altered for the reasons described in the "When to Amend the Application" document posted on the [Administering a Grant](#) page. The following are required to be submitted for an amendment: (1) Page 1 of the application with updated contact information and current authorized official's signature and date, (2) Appendix I with changes identified and described, (3) all updated sections of the application or budget affected by the changes identified below, and, if applicable, (4) Amended Budget Request. Amendment Instructions with more details can be found on the last tab of the budget template.

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Amended Section   **Reason for Amendment**