



MESA Buddies Spring 2021 General Information

MESA Buddies is a mentor program in which a MESA high school collaborates with a local elementary classroom (grades 2-4) to provide supplemental STEAM instruction and mentorship. Attached and on our MESA website you will find all needed materials to apply for a Spring 2021 MESA Buddies Program. Please read all eligibility and course requirements carefully. It is the responsibility of the applying teacher/program to recruit a partner elementary classroom and secure administrator approval.

MESA BUDDIES EVENT SITE: <https://www.nmmesa.org/event/ mesa-buddies-program/>

MESA Buddies Program Requirements:

- A high school program with at least 10 participating MESA students.
- All participating high school students are required to have an A-2 and A-1 completed and submitted.
- A partner elementary classroom (grades 2-4) in the same school district with at least 15 participating students.
- All participating elementary students will be required to submit an online A-1 form.
- Each session should have a preferred 1:2 (High School:Elementary) student ratio. High School student(s) will receive a leadership credit each session (entered by the high school advisor).
- A commitment to host at minimum 10 lessons (provided) either in person hybrid or virtual.
- A commitment to coordinate any material distribution. All materials for the given lessons will be provided to you. If needed, items may need to be arranged into student packs and picked up for use during the program.
- 4 programs will be awarded in the North/North Central Los Alamos National Laboratory support area. 4 programs will be awarded throughout the rest of the state.
- Each course will be allowed up to \$350 for additional supplies, end of year event, transportation, or any program specific needs/requests.

If accepted as a MESA Buddies Program:

- An acceptance packet will be sent with:
 - Instructor contract.
 - A roster template for both high school and elementary students.
 - A general course calendar template.
 - An optional budget form (for the additional \$350).
 - A final report template.
- A site visit will be conducted (virtual or in person TBD).
- A full activity guide and materials will be provided.
- A final report will be due upon the completion of the course.
- Upon fulfillment of course requirements and submittal of required paperwork, the applying advisor will receive a \$750.00 stipend.

MESA Buddies Selected Lessons:

All activities were selected for the ease of use in a virtual or hybrid setting. All final lesson guides and needed materials will be provided to accepted programs. Lesson guides will include activity instructions, background information needed (for high school students), investigating questions, and materials needed.

ACTIVITY 1: BUILDING BRIDGES

Build a bridge and test its structural limits. See where the bridge fails and design ways to improve the bridge, test the design, and make the best possible bridge.

ACTIVITY 2: CREATING CATAPULTS

Use the design process to create a catapult. How far does your catapult throw? Can you make it throw further? Try different designs to meet the challenge objectives.

ACTIVITY 3: STRUCTURE BUILDING CHALLENGES

In a series of timed challenges, students use set materials to try to build the tallest or the largest structure. Add to the challenge by giving the students a budget and cost sheets.

ACTIVITY 4: STRUCTURE STRENGTH CHALLENGES

In a series of timed challenges, students use set materials to try to build a structure that will hold up to tests that simulate earthquakes or tornadoes. Add to the challenge by giving the students a budget and cost sheets.

ACTIVITY 5: THE POWER OF PAPER

Explore architectural elements using paper and test the strength of your paper structures.

ACTIVITY 6: STAR STORIES

Civilizations the world over use stars for navigation, telling-time, and mythologies. Using star maps create your own star stories and constellations and become an astro-mythologist.

ACTIVITY 7: JUMP ROPE MATH

Does the length of the jump rope that someone uses depend on their height? Students will collect data on different jump rope lengths and people of different heights. Create and use graphs to look for patterns in the data and make predictions.

ACTIVITY 8: PAPER AIRPLANE CHALLENGES

Try to make a paper plane fly 10 feet, do a loop, or even carry cargo.

ACTIVITY 9: EXPLORING PAPER GLIDERS

How can paper fly? Explore the basic principles of flight and create the ultimate glider. Add to the glider designs to improve it's flight distance, perform acrobatics, and accuracy.

ACTIVITY 10: MAKING MOBILES

Investigate balance and how adding weights affects the center of gravity. Use this knowledge to design and build a mobile.

MESA Buddies Important Dates and Timeline:

- December 1, 2020 at 5PM: Applications Due via Email to anita@nmmesa.org
- December 14, 2020: Program Notifications Sent
- January 13, 2020 at 3:30-5:00 PM: Orientation Meeting (Required) to review activity guide and required materials.
- January 15, 2021: Acceptance Packet Information Due-Roster, Calendar, Budget Request, Contract
- January 22, 2021: Final Receipt of Materials at School Site from NM MESA and Release of Full Activity Guide (materials will be sent upon collection of the acceptance packet information so can be sent earlier).

Instructor Application Information:

- Application must be completed in entirety or will not be considered. Please review and take time in completion.
- Grading and selection are based on:
 - Completeness, accuracy, strength, and overall quality of application
 - All requirements are met for the course: student numbers, budget, etc.
 - Support of school district and collaborating elementary program.

Projected Student Roster: Each high school must have a minimum of 10 student to commit to the program. Students have to have the required paperwork on file: A-2 and A-1. Final students may change, but you need a minimum commitment to apply.

Letter(s) of Support: This letter from a school administrator needs to include a commitment and the allowance of the partnership: student time, teacher time, shared classroom, etc.

Please direct any questions and submit completed application by **December 1, 2020 at 5PM** to:

Anita Gonzales, NM MESA Program Coordinator
Email: anita@nmmesa.org
Cell: 505-718-9517