

**Abstract (no more than 100 words)**

3<sup>rd</sup> grade students will expand their knowledge of force, motion, gravity, mechanical energy, and rocketry by conducting science experiments about rocketry and related physics. Our main goal will be completing all of the steps needed to conduct a successful model rocket launch with each student. We will construct model rockets, foam rockets with angled launching tools, air pump rockets, airplane wing models, hero engines (a simple, bladeless, steam turbine which spins), and bolos (a rocket that blasts from a launching pad) to study orbits and centripetal force. With these authentic experiences, students will have deeper understanding of each scientific concept. The unit concludes with a launch event using the completed model rockets.

**Central Office Administrative Review Committee**

**Date of Meeting:** \_\_\_\_\_

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***General Notes and Comments by the Administrative Review Committee***

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# Innovative Educational Grant Application

(Submit electronically as an email attachment separate of the Cover Sheet Pages)

**IMPORTANT - Do not include the name of your campus in the Project Title or application.**

**Project Title: 3<sup>rd</sup> Grade Is All Rocket Science**

Grade(s) 3<sup>rd</sup>

(List each grade level)

Subject(s) Science

Number of Students: 105

CHECK ONE:

This project is:

new to the district     new to my campus     new to me.

Have you received funds for this project from AISD previously?

Yes     No

Have you previously received an AEF Grant?

Yes     No

**DIRECTIONS:** Please provide a summary for each area listed below.

**Description of Proposed Project/Activity:** (Describe what you want to do with the grant funds. List activities and timeline. How is it a new, innovative or creative for Aledo ISD)?

The third grade team will team up with the certified teaching staff of Worth Learning Inc. Worth Learning Inc. will conduct 1 hour rocketry building labs with each class for 4 weeks, where the first half of the hour is spent completing a building step for each student's model rocket. The second half of the hour will be a stand alone rocket lab designed to teach a certain rocketry concept. In the 5th week, the 3rd grade team will hold a rocket launch event to display their newly learned rocketry skills. Parents, administration, and representatives from the Aledo Education Foundation are all invited to attend.

Stand-Alone Labs:

Week 1-Foam Rocketry- The students will construct foam rockets and angled launching tools.

Week 2-Air Pump Rocketry- Students will build their own rocket to launch off of air powered launchers provided by Worth Learning Inc.

Week 3- Lift and Thrust Lab- Students will experiment with lift by building and testing their own model of an airplane wing, then explore the concept of thrust by building their own Hero engine to take home.

Week 4- Orbit with Gravity- Students will build their own bolo to experiment with centripetal force, and to learn how rockets use their orbit to overcome gravity.

Week 5- Rocket Launch Party- Students will finalize their model rockets and hold a blast off event.

**Objectives:** (State measurable objectives in terms of student behavior or performance).

(6) Force, motion, and energy. The student knows that forces cause change and that energy exists in many forms. The student is expected to:

(A) explore different forms of energy, including mechanical, light, sound, and heat/thermal in everyday life;

(B) demonstrate and observe how position and motion can be changed by pushing and pulling objects to show work being done such as swings, balls, pulleys, and wagons; and

(C) observe forces such as magnetism and gravity acting on objects.

**Need:** (Describe the area of student achievement you wish to address and give any data that supports the need. Please include how this grant addresses district and campus goals).

Our school's instruction and curriculum goal states that we will provide opportunities that meet the academic needs of all learners and the expectations of state standards. By providing hands-on activities for these 3<sup>rd</sup> graders, it will bring the concept of force, gravity, and mechanical energy to life. They will remember this experience when they are taking the STAAR science test in 5<sup>th</sup> grade and for the rest of their lives.

The college and career readiness standards state that the students will understand the concept of momentum in force and motion and understand the relationship of work and mechanical energy. These labs will create a drive in students to want to become mechanical engineers or work for NASA in their space launching department when they grow up.

Our district strives to meet every child's need, making the moment count, every student every day. Our district's goal 1.2 states that we will provide a variety of diverse, rigorous courses and programs to meet student needs and prepare them for the future to be successful in a competitive-global society. By conducting different types of rocketry experiments, the students will have a deeper understanding of force, mechanical energy, and gravity maximizing student success.

**Evaluation Strategy:** (Describe how you will know if your objectives are met. How will you share your program's successes with your peers)?

3<sup>rd</sup> grade will invite the parents, administration, and foundation members to our Rocket Launch Party on March 11<sup>th</sup>. This will show all of the parents, foundation members, and administration how hard the kids have worked to understand and create their different types of rockets.

**Partners:** (Identify any school and/or community partners involved in the project and their respective roles).

The third grade team will be partnering with the parents, administration, foundation members, and with the staff of Worth Learning Inc. for the Launch project on Mar. 11<sup>th</sup>. I will contact the June Lancarte of Aledo ISD and the Community News to come take pictures of the Launch Event on March 11<sup>th</sup>.

**Sustainability:** (If funded, how will you continue the program/project in the future? What will be the recurring costs? How will this program/project be funded in the future)?

This lab will only be conducted with the third grade students of this current school year. The third graders will carry the knowledge of rocket science with them year after year. As teachers, we will gain more knowledge to be able to share with our future students.

## Budget Worksheet

**DIRECTIONS:** Note the budget distribution for each category. Be specific.

Budget Items	Amount	Vendor	Budget Code Business Office Use
<b>Supplies (please list)</b>			
Model rockets \$11 each x 105 students	\$1,155	Worth Learning	
Model rocket engines \$3 each x 105	\$315	Worth Learning	
Launch wadding: .50 x 105	\$52.50	Worth Learning	
Launch pads \$25 x 2	\$50	Worth Learning	
Launch controllers \$11 x 2	\$22	Worth Learning	
Glue, scissors, ruler, pencils, tape, batteries, and talcum powder \$0 (provided by Worth Learning Inc. at no cost)	\$0	Worth Learning	
Foam rocket engineering lab kits \$4.50 x 105	\$472.50	Worth Learning	
Angled launch tools for foam rockets \$3.00 x 105	\$315	Worth Learning	
Air pump rocket kits \$4.00 x 105	\$420	Worth Learning	
Air pump launch pads and bicycle pumps \$0 (provided by Worth Learning Inc. at no cost)	\$0	Worth Learning	
Lift and Thrust Lab Straw wing lift set up \$1.50 x 105	\$157.50	Worth Learning	
Hero Engine Construction Lab \$4.00 x 105	\$420	Worth Learning	
Orbit with Gravity centrifugal force lab	\$472.50	Worth Learning	

\$4.50 x 105			
Equipment			
<b>Contracted Services (list consultants)</b>			
4 weeks of guided instruction in rocketry construction and a 5th week of launch procedure instruction: \$0 (provided by Worth Learning Inc. at no cost)	\$0	Worth Learning	
Guided instruction for foam rockets and angled launcher construction: \$0 (provided by Worth Learning Inc. at no cost) Guided instruction for air pump rockets: \$0 (provided by Worth Learning Inc. at no cost)	\$0	Worth Learning	
Guided instruction for lift and Thrust, and Hero Engine construction \$0 (provided by Worth Learning Inc. at no cost)	\$0	Worth Learning	
Guided instruction for Centrifugal force lab \$0 (provided by Worth Learning Inc. at no cost)	\$0	Worth Learning	
Launch day Field set up, student launch management, and rocketry recovery \$0 (provided by Worth Learning Inc. at no cost)	\$0	Worth Learning	
<b>Recurring Cost:</b>			
<b>Training/Professional Development:</b>			
<b>Other:</b>			
<b>TOTAL</b>	<b>\$3,852.00</b>		

**Grant Applications should be submitted to AEF electronically. Email application as an attachment to Lynn McKinney at [lmckinney@aledoisd.org](mailto:lmckinney@aledoisd.org). Do not submit hardcopies of grants. Include the Cover Page with appropriate approval signatures as an attachment separate of the Grant Application.**