

Arkansas Space Grant Consortium

University of Arkansas at Little Rock
2701 S. University, ETAS 329, Little Rock, AR 72022

Dr. Keith Hudson, Director
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ARKANSAS SPACE GRANT CONSORTIUM Outreach Program

Funding Amount:

\$200 - \$5000

Eligibility

Outreach Grants may be awarded to any Educator, Organization, or Company working with K-12 students in the State of Arkansas. This may include K-12 Schools, Home School Networks, Cooperatives, Community Colleges, Universities, Private Businesses, Corporations, Civil Air Patrol, Girl Scouts, Boy Scouts, 4-H, and Boys and Girls Club, etc.

These funds are awarded only for aerospace related topics/projects. While there is a broad range of allowable use of the grant funds, project-based learning (i.e. students having hands on experiences) is preferred. STEM fields are given priority. However, proposals involving classrooms outside of the field of science will be considered.

ASGC Outreach funding can be used to train students for science fair projects (i.e. as in a classroom exercise.) The monies are not allowed to directly fund students. If a student project is involved, the funding can be used to purchase supplies for the student to perform the activity/work.

The Outreach award is not designed for teacher travel to Professional Development conferences and workshops. There are, however, a few exceptions to this policy. One example would be an event directly sponsored by NASA. Requests will be considered on a case by case basis by the ASGC Board.

Duration*

One year. The K-12 grant period is August 4 to August 3 of the following year. There is **no deadline** for submitting a proposal for this program. Applications are accepted year round.

Requirements*

The application must be fully completed, containing all pertinent information concerning the use of the award, including project title, Arkansas Frameworks, grade levels, and number of students involved. A detailed list of materials/items to be purchased, including where purchased, is required.

A Non-Federally funded 1:1 match is required. You may use materials/supplies from your classrooms that assist with the funded project and have not been counted as match before (i.e. donated items, bus/van rentals provided by your school, library resources, software, cameras, supplemental reading material, or any other non-federally purchased materials that your institution has supplied. If there are difficulties in finding a match, please contact the ASGC office for assistance.

Once a grant has been awarded, the recipient must give ASGC brief updates regarding the project. A final report form (found on our website) must be completed and sent to ASGC by end of the funded year. All receipts using ASGC funds must be included in the final report.

Proposal

The application form will be used as a cover sheet for your proposal. (Please just briefly describe your project in the summary area provided) Use the proposal to fully describe it.

Create a Word document for your proposal containing the following six categories. Proposals will not be accepted without each section completed. All documents must be typed.

1. **Project description:** Describe your project in detail. This does not need to be lengthy – one or two paragraphs. This is to show you have a well thought out plan that will benefit students.
2. **Enhancements to classroom:** Describe how this project will enhance your abilities to teach aerospace related education.
3. **Number of students involved and amount of participation:** List the number of students (including male/female ratios) that will be included. Describe the level of involvement the students will have during the project. Is it going to be a hands-on learning experience for the students? We will request demographics for the students/teachers involved in the project for the final report.
4. **New aerospace-related materials you expect to incorporate in existing courses:** Describe the materials/ideas that will be introduced into your classroom, and how it will be used to further the education of current students (and possibly future students.)
5. **Arkansas Frameworks:** List each Arkansas Framework that will be address during the project. Arkansas Frameworks can be found at: <http://www.arkansased.org/divisions/learning-services/curriculum-and-instruction/frameworks>
6. **Detailed budget justification:** List each item that will be needed during the project. This should include the approximate price of each item, as well as the place of purchase. Please be as specific as possible on the prices/places. Please also designed your non-federally funding match budget to include the items you wish you use. (A blank budget form can be found on our website under the documents tab)

Examples of Allowable/Unallowable Expenses:

<u>Allowable</u>	<u>Unallowable</u>
Classroom Supplies (i.e. glue, scissors, paint)	General Office Supplies (i.e. pens, pencils, paper)
Books and Posters	Computers
Registration Fees	iPads
Rockets/Telescopes	Printers
Science Fair Training Supplies/Tools For Student Training	Reoccurring utilities (i.e. internet service)
Classroom Demonstrations	Furniture (i.e. desks, chairs, tables)
Software Programs	Buildings or Facility Enhancements
Bus/Van Rentals/Teacher Travel	Student Travel or Direct Compensation
Meals (only during overnight travel)	Food for an Event

*This is not a complete list. Please contact our office concerning specific items that you may need. Specific items that are normally considered not allowable may be allowable depending on use. This is especially true regarding office supply type items.

Example Proposals:

There are 3 different types of example applications/proposals below for your convenience. These include a traditional STEM proposal, a non-traditional STEM proposal, and a traveling proposal.

Underserved Minority Groups:

Hispanic Pacific Islander African American
Native American Women

Correspondence

Please email, fax, or mail your completed application to the ASGC Program Office (Attn: Outreach). It will then be presented to the ASGC Board for approval. Upon approval, funds will be awarded and delivered to you.

We encourage questions during the application process. Questions can be made through Phone, Email, or the Arkansas Space Grant Consortium Facebook page.

Note: ASGC is committed to providing full assistance for success from the beginning of the application process to the completion of the final report. All forms and documents can be found on our website under the Documents tab.

Contact Information:

Outreach Coordinator
501-569-8212
asgc@ualr.edu

Ms. Missy Hill
NASA Programs Coordinator
501-569-8212
mshill@ualr.edu

NOTE: The example documents below all refer to the Outreach Grants as K12-Outreach. The documents shown are actually pictures contained in Word and cannot be changed at this time. Please use these samples as examples of how to handle your forms! Thanks!

Arkansas Space Grant Consortium

University of Arkansas at Little Rock
 2801 S. University, ETAS 329, Little Rock, AR 72204
 Dr. Keith Hudson, Director
 Ms. Schyler Cannatella, Education and Outreach Coordinator
 Ms. Laura Holland, Finance Coordinator

Phone: 501 569 8213

Fax: 501 569 8039

Email: asgck12@gmail.com

web: <http://asgc.ualr.edu>

K-12 Grant Application

Date: 3/19/2014

Project Title: A View From Space (The Scientific Revolution)

Institution:	Street/Box No:	City/State:	Zip:
Arkansas Academy	1 Academy Road	Little Rock, AR	72204
Names of Persons Involved:	Title:	Department:	E-mail:
1. Noah Lott	8th Grade History Teacher	History	noah_lott@aracademy.org
2.			
Telephone No:	Fax No:	Best Contact Time:	
501-789-5010	501-789-5011	8:00 AM to 5:00 PM	

Names of Schools Involved:	Address:	Zip:	Contact:
1. Arkansas Academy	1 Academy Road	72204	Noah Lott
2.			
Contact:	Contact Phone:	Contact Fax:	Contact Email:
Noah Lott	501-789-5010	501-789-5011	noah_lott@aracademy.org

Brief Summary of Project: (See Guidelines):

The students will research a specific influential scientist during The Scientific Revolution. They will then write a mini-term paper regarding the work of that scientist and how it was influential to history, as well as the scientific world.

Summary of Funds Requested: (Please attach a detailed budget)

	ASGC:	Match:	Total:
1: Materials and Supplies:	\$ 1500.00	\$ 1500.00	\$ 3000
2: Travel:	\$	\$	\$ 0
3: Other: _____	\$	\$	\$ 0
4: Other: _____	\$	\$	\$ 0
5: Other: _____	\$	\$	\$ 0
6: Other: _____	\$	\$	\$ 0
Total:	\$ 1500	\$ 1500	\$ 3000



Signature

Project Description:

The project will last throughout the Fall Semester for one group of students and throughout the Spring Semester for the other group of students in order to allow the students to have time to thoroughly research their topic. We will be learning about the history of The Scientific Revolution. I will assign each student with a different influential scientist during that time. They will then research the scientist and their ideas, inventions, and/or theories. Some examples of scientists that I intend to assign are Muhammed Al-Khwarizmi, Tycho Brache, Nicholas Copernicus, Galileo Galilei, Johannes Kepler, Isaac Newton, Claudius Ptolemy, and Zhang Heng. They will write a mini-term paper about the Scientific Revolution, how the assigned scientist was influential, and how we use their findings/ideas/inventions today.

Enhancements to Abilities to Teach:

The project will allow me to also learn about the different aspects in The Scientific Revolution in detail from their papers.

Student Involvement:

My entire 8th grade class will be included in the project. There are 70 Students total of 3 different class periods. There are 43 males and 27 females. The students will have to do their own research regarding their assigned topic. We will set up a library type setting where the students will have to check out materials for their own, individual research.

New Aerospace-Related Materials:

There will be new books concerning the Scientific Revolution added to the classroom, as well as other material including posters and videos regarding the era that will continue to be used by future classes, as well as other departments within the school. We plan on having a few copies of each book to ensure each student has ample resources for their topic.

Arkansas Frameworks to be addressed:

History Standard 6: History- Grade 8 - H: 6 – 8 – 5: Identify major contributors of the Scientific Revolution

Detailed Budget Justification:

Materials/Supplies:

Amount	Description:	Purchase Place:	Price
1	Poster - Galileo Moon Phases	Allposters.com	\$25.00
1	Poster – Kepler’s Universe	Allposters.com	\$25.00
2	Computer Software: The Frontiers of Space	Rakuten.com	\$360.00
2	Computer Software: Middle School World History Revolutions	Rakuten.com	\$250.00
5	Book: The Structure of the Scientific Revolutions	Barnes and Noble	\$100.00
5	Book: The Scientific Revolution in National Context	Barnes and Noble	\$550.00
3	Book: Lost History: The Enduring Legacy of Muslim Scientist	Barnes and Noble	\$50.00
5	Book: Atlas of Science: Visualizing what we know	Barnes and Noble	\$50.00
3	Book: Johannes Kepler: Giant of Faith and Science	Barnes and Noble	\$50.00
3	Book: The Redemption of Tycho Brahe	Barnes and Noble	\$40.00
		Total:	\$1500.00

Match Budget:

Amount:	Description:	Price:
1	Poster – Vesalius: Skeleton	\$25.00
1	Poster – Copernican Universe	\$25.00
1	Video: “Just the Facts: The Scientific Revolution (2Pack)	\$50.00
5	Book: The Scientific Revolution: Aspirations and Achievements	\$125.00
5	Book: The Scientific Revolution: An Encyclopedia	\$500.00
3	Book: Philosophers of Science: Lucretius, Copernicus, Bacon, Descartes, Comte, Darwin	\$150.00
3	Book: The Essential Galileo	\$75.00
3	Book: The Life, Writings and Discoveries of Sir Isaac Newton	\$225.00
5	Book: The Scientific Revolution and the Origins of Modern Science	\$225.00
3	Book: Scientific Revolutions in the History of Science	\$100.00
	Total:	\$1500.00

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K-12 Grant Application

Date: 3/18/2014

Project Title: 5...4...3...2...1... We Have Liftoff!

Institution: West Point High School		Street/Box No: 114 West Side Street		City/State: West Point/AR		Zip: 72145	
Names of Persons Involved:		Title:		Department:		E-mail:	
1. Susan Smart		Physics Teacher		Science		ssmart@westpoint.edu	
2.							
Telephone No: (501) 548-9856			Fax No: (501) 748-6589		Best Contact Time: 8:00 AM - 5:00 PM		

Names of Schools Involved:		Address:		Zip:		Contact:	
1. West Point High School		114 West Side Street		72145		Susan Smart	
2.							
Contact:		Contact Phone:		Contact Fax:		Contact Email:	
Susan Smart		(501) 548-9856		(501) 748-6589		ssmart@westpoint.edu	

Brief Summary of Project: (See Guidelines):

The students will be demonstrating a Helicopter Liftoff, and how the speed of the rotor will affect the amount of lift for the Helicopter. The students will measure the rate of the blade rotation on a remote-controlled helicopter. They will then use this information to determine how this rate affects the vertical motion of the helicopter. The students will then add weights to the helicopter and measure how this weight changes the lift of the helicopter. The project will be an in-classroom learning experience, with the students learning hands-on.

Summary of Funds Requested: (Please attach a detailed budget)

	ASGC:	Match:	Total:
1: Materials and Supplies:	\$ 200	\$ 200	\$ 400
2: Travel:	\$	\$	\$ 0
3: Other: _____	\$	\$	\$ 0
4: Other: _____	\$	\$	\$ 0
5: Other: _____	\$	\$	\$ 0
6: Other: _____	\$	\$	\$ 0
Total:	\$ 200	\$ 200	\$ 400



Signature

Project Title: 5..4..3..2..1 We have LiftOff!

Project Description:

The students will be learning about rotation and speed while measuring the different RPMs of the Helicopter during hovering, ascending, and descending. It is designed to help demonstrate to students why a helicopter can vertically lift off the ground. It allows them to explore what aerodynamic factors contribute to the helicopter's ability to do so. The project will last over several different days in the classroom. We will begin with learning the different parts and aspects of a helicopter. The demonstration will actually allow the students to measure the speed of rotation, and how it changes during movement of the helicopter. The students will be learning and using a digital tachometer to accurately measure the RPM. They will need to calculate the RPM depending on the different influences on the helicopter. They will use a tape measure to measure the distance the helicopter ascends or descends. They will determine the hover rate, the ascent rate, and descent rate of the helicopter. Each demonstration will be repeated to ensure accuracy. The averages of the different rates will be used to make a graph of the information. The exercise will then be repeated using different http://www.sciencebuddies.org/science-fair-projects/project_ideas/Aero_p043.shtml#summaryweights attached to the helicopter.

Enhancements to teaching:

I have been a physics instructor for 17 total years, including 3 years at West Point High School. Previously, I was the instructor at The Institute of Science Highs School for 14 years. This project will allow me to actively involve the students in learning different aspects of aerodynamics and motion. It will give me the necessary means to demonstrate the different variables that can change rate of motion. It is very important for the students to begin to understand the concepts associated with motion. The activity will allow them have direct participation in an interesting manner.

Student Involvement:

The class has a total of 15 students. There are 7 female and 8 male students. I anticipate the students completing the experiment with each other entirely. I want the students to measure the different aspects and calculate the correct corresponding rate. The point of this experiment is for the students to have hands-on experience with rates of motion.

New aerospace-related materials:

The remote control helicopter will allow for many future activities for the students to be involved. The Tachometer will give the students the opportunity to learn the mechanics of the machine, as well as the ability to take measurements of rotation.

Arkansas Frameworks:

Physics/Science Curriculum Framework

Grades: 9 - 12

Standard 1: students shall understand one-dimensional motion

Standard 2: students shall understand two-dimensional motion

Standard 3: students shall understand the dynamics of rotation equilibrium

Standard 16: students shall demonstrate an understanding that science is a way of knowing

Standard 17: students shall safely design and conduct a scientific inquire to solve valid problems

Standard 18: students shall demonstrate an understanding of historical trends in physics

Standard 19: students shall use mathematics, science equipment, and technology as tools to communicate and solve physics problems

Detailed Budget Justification:

Materials/Supplies:

Amount:	Description:	Purchase Place:	Price (with tax):
1	Warbird 2 Radio Control Helicopter	Toys R Us	\$100.00
1	Neiko 20713A Digital Tachometer	Amazon	\$30.00
1	Taylor Digital Scale	Walmart	\$15.00
1	Sportslines 480 Stopwatch	Walmart	\$15.00
1	9-piece Hanging Weight Set	Sci-Supply.com	\$40.00
		Total:	\$200.00

Match Budget:

Amount:	Description:	Value:
1	Samsung Digital Video Recorder	\$155.00
1	Tape Locking Tape Measurer	\$15.00
16	Safety Goggles	\$30.00
	Total:	\$200.00

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K-12 Grant Application

Date: 3/18/2014

Project Title: RockOn! 2014 Workshop

Institution:	Street/Box No:	City/State:	Zip:
Rocket High School	1234 Blast Off Avenue	Little Rock, AR	72204
Names of Persons Involved:	Title:	Department:	E-mail:
1. Barb E. Dohl	12th Grade Science Teacher	Science	barb_e@rockethigh.edu
2. Penny Lane	12th Grade Physics Teacher	Physics	penny_lane@rockethigh.edu
Telephone No:	Fax No:	Best Contact Time:	
123-4567-890	987-654-3210	8:00 AM to 5:00 PM	

Names of Schools Involved:	Address:	Zip:	Contact:
1. Rocket High School	1234 Blast Off Avenue	72204	Barb E. Dohl
2.			Penny Lane
Contact:	Contact Phone:	Contact Fax:	Contact Email:
Barb E. Dohl	123-456-7890	987-654-3210	barb_e@rockethigh.edu
Penny Lane	123-456-7890	987-654-3210	penny_lane@rockethigh.edu

Brief Summary of Project: (See Guidelines):

The RockOn! 2014 Workshop is an opportunity to learn hands-on experience in aerospace. It is a week long workshop. The teams will learn how to build a sounding rocket payload (RocketSat). The kit will be provided and take 4 days to build. They will be launched on the 6th day of the workshop.

Summary of Funds Requested: (Please attach a detailed budget)

	ASGC:	Match:	Total:
1: Materials and Supplies:	\$	\$	\$ 0
2: Travel:	\$ 1700	\$ 900	\$ 2600
3: Other: Registration Fees	\$ 800	\$ 1600	\$ 2400
4: Other: _____	\$	\$	\$ 0
5: Other: _____	\$	\$	\$ 0
6: Other: _____	\$	\$	\$ 0
Total:	\$ 2500	\$ 2500	\$ 5000



Signature

Project Title: RockOn! 2014 Workshop

Project Description:

During the RockOn workshop, teams will gain experience through hands-on activities. They will learn how to build a sounding rocket payload and actually build it from a kit provided to them. Teams of 3 will build their RocketSat within the first four days, and then they will launch it on sounding on the sixth day of the workshop. The information and experience using these RocketSats is very important for students to learn because the hardware could be used on future RocketSat and possible even CubeSat flights. The workshop is June 21-June 26, 2014 in the Wallops Flight Facility in Virginia. The team will build real sounding rocket payloads and actually launch it on a two stage Terrier-Orion rocket. NASA's Wallops Flight Facility will provide the rocket (a two stage Terrier-Orion) and the launch operations during the workshop. The hands-on workshop is about learning to build sounding rocket payloads, not rockets. There is also a tour that is involved, and students are briefed on sounding rocket environments for future flights. Two educators will be present during the project. Ms. Lane will be included in the team, and Ms. Dohl will be learning from observation. Following the project, the team will then give a presentation to each of the science departments explaining the different aspects that went into the build.

http://spacegrant.colorado.edu/images/RockOn/2014/Misc/RockOn_Flyer2014%20B.pdf

Enhancements:

The project will allow both of us (Ms. Dohl and Ms. Lane) to learn hands-on experiences (along with the students) in building rocket payloads. It will also give everyone involved firsthand experience of building and working the different aspects of hardware and software. These skills and knowledge will carry over into the classroom and will benefit the future of the students.

Number of Students and Participation:

The project will consist of 2 students. It will be a team of 3, two students and one teacher. Two students who excel in the classroom will be chosen to accompany the teacher as part of their team. The students will share their experience with the entire class, as well as the science department of our school.

New Aerospace-related materials:

Information regarding the building of RocketSats and the instruments included during assembly. Also the information learned while touring Wallops Flight Facility will be shared to the classroom. The experience of the construction and all that goes into the process will be introduced. The workshop will also provide different contacts for the teachers, as well as pictures and videos to help demonstrate to future classes. It will give us a new avenue of teaching to help promote interest in aerospace related education.

Arkansas Frameworks:

Physical Science Curriculum Framework

Standard 5: Students shall demonstrate an understanding of the role of energy in physics

Standard 6: Students shall demonstrate an understanding of the role of forces in physics

Standard 7: Students shall demonstrate an understanding of wave and particle motion

Standard 9: Students shall demonstrate an understanding that science is a way of knowing

Detailed Budget Justification:

Travel:	Hotel (6 nights @ \$150) Refuge Inn	\$ <u>900.00</u>
	Food (5 days x 2) \$25/day	\$ <u>200.00</u>
	Airfare (\$600 x 1) Delta Airlines	\$ <u>600.00</u>

Registration Fees: (\$799 x 1 person) \$ 800.00

Total: \$ 2500.00

Match:

Travel:	Airfare (\$600 x 1)	\$ <u>600.00</u>
	Van Rental (\$42 x 7 days)	\$ <u>300.00</u>

Registration Fees: (\$800 x 2) \$ 1600.00

Total: \$ 2500.00