

GRANT #40 - Makers Space Learning Lab

I am requesting funds to create an environment for students to engage in science, engineering and exploratory learning.

Part 1: Contact Information

School and Position:	Teacher, Westside	Years in system:	2
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I have shared a copy of this application with my principal, and he/she approves this application. **Yes**

Have you been awarded a grant from the Foundation in the past three years? **Yes**

If yes, did you complete the grant evaluation form? **Yes**

I agree to complete the required Grant Reporting at the conclusion of the grant year (Spring 2019.) **Yes**

Part 2: Grant Overview

Title of Requested Grant	Makers Space Learning Lab	
Amount Requested	\$1591.98	
Proposed Start Date (Month)	September 2019	
Length of grant (one school year or are the materials reusable?)	Reusable Materials	
If other individuals are involved in this grant please list their names and positions.		
Who will this grant impact?	Classroom Grade Level	
	<i>(number of students)</i>	<i>(grade levels of students)</i>
	170	2nd Grade

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Provide a brief, general overview of the proposed grant (250 words or less) in the space below.

In 1915, John Dewey said if we teach today's students as we taught yesterday's, we rob them of tomorrow. So much has changed since then, but this educational pioneer's words couldn't be truer today. With the changing of our workforce being highly digitalized, virtual, and automated, we need students who are critical thinkers and problem solvers. The best way to teach kids these vital skills is by practical learning with real materials designed to boost self-confidence while actively engaging minds. Makers Spaces provide hands-on, creative ways to encourage students to design, experiment, build and invent as they deeply engage in science, engineering and tinkering. These spaces are also helping to prepare those who need the critical 21st century skills in the fields of science, technology, engineering and math (STEM). Some of the skills that are learned in a Makers Space pertain to electronics, 3D printing, coding, robotics, electric conductors, circuit building, constructing bridge models, electricity, magnetism and even woodworking. At Westside, we have an opportunity to build the very foundation required of STEM education that can result in creators, thinkers, problem solvers, doers, innovators, and inventors. Whether one day operating the front line at Foster Farms or performing routine maintenance on an automated carwash at Parr's, our students will be prepared for the 21st century jobs awaiting them. Help me give our second grade students the materials needed to create and investigate. These resources are so exciting, you will want to stop by to share and explore with us!

Have you explored funds through school channels, such as the annual budget process? Yes
If so, why was this grant not eligible for those funds?

I am allocated Teacher Fee money by the state of Alabama. I use this money for consumable classroom supplies and other routine teaching resources. I also receive Fall Festival funds for volunteering my time to put on an exciting event for our WES students. My Fall Festival funds are used for cleaning supplies and anything considered non-educational (vacuum cleaner, brooms, Swiffer). I spend most of the money I receive on practical things. Unfortunately, there is no other money allocated for STEM education. But like my students, I can dream about educational resources that will make teaching and learning exciting. Innovation isn't cheap.

Part 3: Grant Details

A. Objectives and Measurements

Using the table below, outline no more than **four main objectives** of this grant, how each of these objectives will be measured, and what your expected results will be. Each objective should be **S**pecific, **M**easurable, **A**ttainable, **R**ealistic, and **T**imely (SMART).

SMART Objective	How will this objective be measured?	What is the goal or expected measurement?
Students will be able to frame questions, design investigations, conduct investigations, collect data, and draw conclusions.	I will use formative assessments like science and math grades, Moby Max Math and Science Assessments, and Prodigy Math to measure student objectives.	I want my students to be able to discuss, explain, construct, illustrate, and write about constructing models, investigating outcomes , and making scientific and mathematical predictions.
Students will be able communicate effectively using science and mathematical reasoning.	I will observe students working in groups to effectively communicate science and mathematical ideas using key vocabulary.	I will use oral language arts development standards to determine my students growth. My students should be able to discuss the steps of building models using key vocabulary.
Students will be encouraged to create models using a trial and error method.	I will observe students working through processes and ask them to make anecdotal notes/records of what they are learning.	My students will learn that learning is a process, problem solving takes time, and there isn't always one answer to a solution. This will encourage creativity and individuality.

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B. Budget

Provide a detailed budget for the grant in the table below:

Item Description	Price Each	Quantity	Total
Monoprice Voxel 3D Printer with Replacement	500.00	1	500.00
Snap Circuits Pro SC-500 Electronics Exploration Kit	65.99	2	131.98
Straw Constructor, Wooden Ferris Wheel, Levers, Linkages & Structures, Magnets, Roller Coaster Challenge Building Kits	20.00	9	180.00
LittleBits Electronics Circuit Combination Deluxe Kit	400.00	1	400.00
Goobi 110 Piece Construction Set Building, Engino Discovering STEM Structures	40.00	4	160.00
Electronic Assembly Robotic Science Kits, Sphero Robot	150.00	1	150.00
Makey Makey Conductivity Kit	70.00	1	70.00
GRANT TOTAL			1591.98

Please provide the website link(s) to any supporting information you used in determining this budget. You may also attach a scanned copy of documents to the email if needed.

<https://joylabz.com/>, <https://makeymakey.com/>,
<https://www.lakeshorelearning.com/products/stem/N/538022790/>,<https://www.hand2mind.com/category/science/all-stem/3044>

C. Mission Relevance

Mission Statement: The Demopolis City Schools Foundation will encourage excellence, continued investment, and good stewardship of resources in support of students and all those who benefit from a successful Demopolis City School System.

Use the following table to explain how you see this grant supporting the mission of the Foundation and the goals of our donors:

<p>How does this grant encourage excellence in the classroom?</p>	<p>This grant encourages students to become innovative problem solvers. It encourages students to be unique and to look for other possible situations and outcomes. It encourages students to work together. This grant also brings hands-on resources and instruction by using the learn-by-doing model. These resources are not readily available to most children so it helps students in the Black Belt have experiences they normally would not be able to have. STEM Education is cutting edge and research-based.</p>
<p>Does this grant address one of our areas of focus? Tell us a little about one of these: *This grant promotes equity in the classrooms. (For example, will all students have access to the same classroom technology no matter the teacher, etc.) *This grant supports continuity of programs in the system. (For example, does it build on a program that already exists?) *This grant demonstrates collaboration in the school (For example, does this grant show teachers in a grade level, school, or department are working together?) *This grant is something entirely new and I/we want to give it a try.</p>	<p>This grant promotes equity in the classroom by giving all students the opportunity to investigate STEM activities regardless of social and economic status. This grant supports continuity by developing students' interest now in STEM related programs they will experience in the future, such as the award winning Robotics Program at US Jones and the new DMS Lab 212. This grant demonstrates collaboration by allowing the second grade teachers to share resources and teach one another how to use the STEM materials. It also encourages students to collaborate. We have been blessed with Lego Robots in 2nd Grade through a grant through the Foundation. I wish you could see the students excitement every time we build and explore. This grant has encouraged me to try many new STEM ideas and kits in 2nd grade.</p>
<p>How is this grant a good use of the resources of the Foundation?</p>	<p>This grant helps the Foundation by better preparing the future work force of the partners who support the Foundation.</p>

I am excited about the opportunity to grow with my students and co-workers as we develop little minds. I am certain we will see huge growth as our young scientists and mathematicians find a new way to learn!

U.S. Department of Education

Science, Technology, Engineering, and Math

Background

In an ever-changing, increasingly complex world, it's more important than ever that our nation's youth are prepared to bring knowledge and skills to solve problems, make sense of information, and know how to gather and evaluate evidence to make decisions. These are the kinds of skills that students develop in science, technology, engineering and math—disciplines collectively known as STEM. If we want a nation where our future leaders, neighbors, and workers have the ability to understand and solve some of the complex challenges of today and tomorrow, and to meet the demands of the dynamic and evolving workforce, building students' skills, content knowledge, and fluency in STEM fields is essential. We must also make sure that, no matter where children live, they have access to quality learning environments. A child's zip code should not determine their STEM fluency.

Charting a Course for Success: America's Strategy For STEM Education

This report was published in December 2018 and sets out a Federal strategy for the next five years based on a vision for a future where all Americans will have lifelong access to high-quality STEM education and the United States will be the global leader in STEM literacy, innovation, and employment. It represents an urgent call to action for a nationwide collaboration with learners, families, educators, communities, and employers—a "North Star" for the STEM community as it collectively charts a course for the Nation's success.

Promoting Science, Technology, Engineering, or Math (STEM) Education, With a Particular Focus on Computer Science

STEM is a centerpiece of Secretary DeVos' comprehensive education agenda. The STEM priority may be used across the Departments' discretionary grant programs to further the Department's mission, which is "to promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access.

U.S. Department of Education Fulfills Administration Promise to Invest \$200 Million in STEM Education

In November 2018, the Department announced that it not only fulfilled but surpassed President Trump's directive to invest \$200 million in high-quality science, technology, engineering and math (STEM), including computer science, education. In total, the Department obligated \$279 million in STEM discretionary grant funds in Fiscal Year 2018.

Additional Resources about the Significance of STEM Education.

<https://www.whitehouse.gov/wp-content/uploads/2018/12/STEM-Education-Strategic-Plan-2018.pdf>

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