

Osceola Magnet School – Letter of Idea

Name of Project: Fab Lab – Explore, Imagine, Create! **Focus of grant:** Science

Additional Information about the Project: Osceola Magnet is rebranding itself to include engineering, along with mathematics, as a focus. The staff has worked diligently to develop a vertical science plan that includes engineering challenges. We have a design challenge process that students will use in all classes in the school, including special areas and ESE. Administration and staff are committed to providing an atmosphere of learning, collaboration, and creating as students work through an integrated curriculum to include science, math, technology, language arts and fine arts.

Engineering calls for children to apply what they know about science and math—and their learning is enhanced as a result. At the same time, because engineering activities are based on real-world technologies and problems, they help children see how disciplines like math and science are relevant to their lives. Students will use an Engineering Design Process template to help them work through Engineering challenges.

Funds requested will help us create a Fab Lab. This is a new project. Items purchased with these funds directly relate to Engineering Challenges at different grade levels. Examples of design challenges are creating models, prosthetics, building a skyscraper, weather windmill design, build and launching a rocket, Three Little Pig houses, home lighting system, prosthetic elephant trunk, car design, and bridge testing and design. We have some basic supplies but need more.

How this project aligns with the School District Strategic Plan and/or School Improvement Plan: One of The Transformational Impacts 2025 (from the District Strategic Plan) states “All classrooms are designed to meet the needs of students in the 21st Century.” This grant provides students with tools to move in this direction. Our Osceola School Improvement Plan has a goal dedicated to implementing engineering as a focus of our magnet school.

Amount Requested: 9914.35

Total Project Cost: 9914.35

Targeted Population: Kindergarten, 1st, 2nd, 3rd, 4th and 5th grade

Number of children to be served and grade levels: approximately 540 students Grade K-5

Succinct Summary:

The Issue: 5th grade students had a 70% passing rate on the Science FSA in 2018, and a 68% passing rate in 2019. While the percentages are higher than the state scores (55% in 2018 and 53% in 2019) and district scores (54% in 2018 and 53% in 2019) our scores have leveled and we want to see these scores improve. FSA was cancelled in 2020 due to COVID-19, so we do not have a score comparison for 2020. We are a magnet with a math and science focus. Our math scores have increased, largely due to the implementation of Singapore Math strategies. Our goal is to see the same increase in science, so that we can be a model for the district and the state. Our new focus on engineering will help us achieve that goal.

The Change: The Fab Lab is a place where students can not only work on grade level design challenges, but also use their own ideas to create challenges. Using our engineering process – Plan, Design, Share, Check – will allow our students to come up with ideas and solve problems in a creative and engaging way, while using collaboration, critical thinking, and communication skills. There is a natural curiosity in

children about how things work, so it makes sense to start engineering design in elementary, using project-based and hands-on learning. Children learn through play. They take things apart and put them back together – their play reflects engineering skills. Society today is more and more dependent on advanced technologies, which makes engineering and technology skills essential in the 21st Century work force.

The Action: Materials requested for the Fab Lab will be put in the current Science Lab at Osceola. Items chosen for purchase were chosen by grade levels and correspond with the design challenges at each grade level. Items requested will also allow for students to collaborate on projects of their choosing and investigate using tools that will allow creative thinking and innovation. Items such as 3D printers, iPads, and building kits will open a new world of possibilities for students. Students will have access to the Fab Lab during school and in an after-school club. A Lab Manager will oversee and maintain equipment.

Grant Oversight: Chad Bacon, Principal, Janine Jones, Magnet School Coordinator, Kathryn Woodall and Marianne Thomas, Science Coordinators will provide oversight for the grant, equipment and lessons. We will also use the \$700 stipend requested to have a teacher manage and oversee the use of equipment purchased with grant funds.

Monitoring Progress and Results: FSA science scores will be used to monitor student progress. Administration will monitor lesson planning and use of equipment. We have an Engineering Design Process template, which follows our Engineering Design (Plan, Design, Share, Check) to help students record progress.

Volunteers: Community and parent volunteers will be used to mentor and guide students. We will seek out those in different fields of engineering to come and work with students. Volunteers will also be needed to assist with set-up and clean-up in the lab.

Itemized Budget:

Item	Cost	Item	Cost
Lab Manager	600.00	9 volt alkaline batteries	21.98
IPad Mini 128G (10 pack WiFi)	3740.00	Robotics Smart Machines	99.99
PCS Edventures Bricklab Famous Architecture Enrichment Program	875.00	Read aloud Engineering books (6 books)	372.53
Qidi Tech 3D Printer	899.00	Stream Tables (5)	425.00
Sunlu Pla 3D Printer Filament (10)	259.90	Elevator Marble Run	39.99
Novamaker Wood 3D Printer Filament (10)	229.90	Magna-Tiles Metropolis	129.99
Copper Tape	99.90	Mindware Keva Planks	449.98
9 volt battery Clip Connectors Battery Snap Wire Connectors	32.40	Craft and building supplies (craft stick, glue, K'Nex, tools, etc.)	500.00
Gifkun 10mmLED Emitting Diodes	64.80	Pulley System	450.00
Celewell CR2032 Battery (2)	23.99	After School Club Coordinator	600.00
		Total	9914.35