

Full STEAM Ahead - Creating Critical Thinkers and Innovators Rosewood Magnet School 2019-2020

The goal is to engage students in integrated lessons covering Science, Technology, Reading, Engineering, Arts, and Math. We hope to spark an interest in sciences, technology, and engineering in children from an early age and present opportunities that could lead to future careers. STEAM lessons address the need to prepare students for a higher education and arm them with the skills and knowledge they will need to be successful innovators in a 21st century workplace. STEAM fosters the true innovation that comes with combining the mind of a scientist or technologist with that of an artist. It also fosters an inclusive learning environment where all students can engage and contribute by allowing for varied means of accessing and demonstrating learning. Our goal is to incorporate STEAM days into all of our early dismissal days, where students can rotate through their teacher's classes within the grade level and engage in hands on, learning about a given topic through all content areas.

Amount Requested: \$6,298.84

Targeted Population: Our target population will be kindergarten through fifth grade students, approximately 550 students at Rosewood Magnet. We will also continue STEAMING with our third, fourth, and fifth graders in our afterschool Coding Club to extend the work that we began in this area with coding last year.

The Issue: This grant will provide an opportunity for elementary students to learn, explore, and problem solve without limitations and replace traditional teacher directed learning with wonder, inquiry, and innovation on early release Wednesdays. Our school improvement goal is to increase gains in the bottom quartile in reading and math as well as fostering higher order thinking and questioning. We believe project based learning (STEAM days) will lead students to higher order thinking skills by providing scenarios that will challenge them to think through methods of problem solving and reasoning. We want to see all subgroups of our bottom quartile reach at least 60% gains in both reading and math.

The Change: As a result of this grant, students will be exposed to rigorous engaging STEAM lessons and learning experiences that will allow them to work collaboratively. They will have to "Think about their thinking", work as teams, persevere when the answers don't come easy and think outside the box to create new solutions. Learning strategies for problem solving and organizing their thoughts while doing STEAM lessons will improve their ability to problem solve during math and reading lessons throughout the year when they struggle. This will ultimately lead to learning gains in reading and math, addressing our school improvement goals.

In addition, students and teachers will make real-life connections that will open the doors to new career ideas and program options for them in middle, high school and college. It will provide them a safe place to experiment with science and engineering that they might otherwise be afraid to try.

The Action: Teams will plan, organize and implement STEAM days for early release Wednesdays. Students will rotate through classrooms working through their "problem" as they use each subject area to address a different step of the problem solving process. Students will be presented with a challenge, such as how to design and build a bridge suitable for the Florida weather that will stand the test of time and hold up to the traffic demands with a given set of materials. They will then need to use problem

solving, higher order thinking strategies to work through finding a solution. This could involve several trials and reworks, which will encourage perseverance and collaboration.

This grant will allow us to purchase teacher professional development STEAM Books, provide PD to teachers in how to plan these days, provide read alouds to introduce students to STEAM related ideas , and purchase materials needed to implement STEAM Day challenges. The grant would allow us to designate a STEAM Coordinator who will be responsible for teacher professional development. They will provide support during grade group planning, model lessons and help with ordering supplies. The STEM coordinator would also organize outside agencies/partners and find ways they can come in to be “experts” in the areas of study to share with students and expose them to future career opportunities.

We would also continue building on the after school coding club by extending several of the challenges to the coding team to find ways that the programming skills could be used to help problem solve using varied means of technology. The coding club coordinator will set up afterschool dates and times for them to share their learning experiences with their peers, parents, and community members.

Grant Oversight, Monitoring Progress, and Results: Principal Casandra Flores, Mrs. Falana, STEAM coordinator and Mr. Trevisol, coding club coordinator, will be responsible for project oversight and sustainability. Progress monitoring of student ability and application will take place during the early release Wednesday STEAM Days through problem-solving task completions. We will also monitor reading and math gains through Unify Formative Assessments, rubrics, iReady Diagnostics, and State Assessments.

Itemized Budget:

STEAM DESIGN CHALLENGES by Creative Teaching Press 1 book per teacher- \$1,099.45
Picture-Perfect STEM Lessons by Emily Morgan and Karen Ansberry 1 book per grade level-\$264.18
\$1,000 Stipend for Professional Development Support/ Robotics Club (2 teachers to run the afterschool program)
\$800 Stipend for STEAM Coordinator
\$1,760 (5-hour training and professional development for 2 members per grade level to attend on a Saturday)

Supplies:

Creative Kids Flakes 1 per class \$122.43
Legos 1 per class \$195.93
Gears and Links \$125.65
Magnetic Tiles \$174.93
Puffy Snowflakes \$209.93
Engineering sticks \$123.76

Total of Supplies, PD books, PD time and Stipends : \$5,876.26

Classroom Read Alouds: (These books would be used to excite and preview for students)

Perfect Square \$90.65	What to Do with a Box \$62.93	
If I Built a House \$56.00	Iggy Peck Architect \$77.00	
What Do You Do with an Idea? \$80.00	Rosie Revere Engineer \$56.00	<i>Book total: \$422.58</i>

Total amount: \$6,298.84