



Innovation Grant Application

Library: A. K. Suter Elementary

Project Manager: Paula Stillman

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Name of Project: All About "Bots"!

Grant Amount requested: \$4946.02

Scope of the Project: Our project goal is to transform our students today into the innovators of tomorrow by introducing them to the world of "BOTS"; Ozobots and the MakerBot! We want to create an excitement for robotics, coding, and creating at an early age! Our county has implemented a Maker Space Movement and we want to join them! Our Superintendent's goal is for all libraries to be places where students can explore, create, and discover! The goal of the Ozobot, a hand held programmable robot, is to introduce kids to simple coding and, at the same time, teach skills such as deductive reasoning while expanding their imaginations. We will combine the introduction of these robots and coding with math skills each class is currently studying. After being introduced to the Ozobots, students will have the opportunity to work them individually. Once comfortable with how to operate the Ozobots, students will be given challenges to complete using what they have learned about coding. In order to successfully complete the challenges, the students will have to use coding and math skills based on their academic level. They will have to be creative in their approach to a solution. The goal of the MakerBot 3-D printer is to help students tackle real-world problems, inspire STEAM (Science, Technology, Engineering, Arts, and Math) creativity, and prepare our students to be future innovators. Students will learn how to create a 3-D model using Tinkercad. After learning a few basic steps, our students will put their imaginations to work as they use the MakerBot 3-D replicator to print their unique designs.

What need in the library/community will this project address?

Students in the United States lag behind other countries in STEAM related subjects. Our students need to be able to think critically, problem-solve and collaborate in order to succeed in the future. This project provides our students the opportunity to think outside the box, way outside! This project also allows us to achieve our district goal of preparing our student for success through the Maker Space Movement. Our school has strong academics, but falls short when it comes to technology and innovation. We want to inspire students and teachers to become innovators. The Ozobots and the MakerBot 3-D printer will excite and motivate our students to move beyond what they have learned in textbooks.

MakerBot 3D Printer Essentials Bundle: One MakerBot Replicator+ Desktop 3D Printer One MakerBot Smart Extruder+ Large Ten Pack of MakerBot PLA Filament 1-Year MakerBot MakerCare Protection Preferred Plan for the Replicator+	3700.00	3700.00	3700.00
Ozobot Classroom Kit: 18 Ozobot Bits 18 Clear Skins 3 Multiport Chargers 18 Sets of Color Code Markers 18 Ozocode Sheets Ozobot Tip Sheet Ozoblockly Get Started Sheet Bowling Challenge w/ Bowling Pins Ozobot Poster Ozobot Storage Box Classroom Kit Storage Bin	1000.00	1	1000.00
Ozobot Bit (2.0) Single Crystal White	59.00	2	118.00
10 Clear Skins for Ozobots (pack of 10)	5.00	2	10.00
Construction Accessory Kit for Ozobots	12.00	3	36.00
Shipping	82.02	1	82.02
			4946.02

Activities/Timeline (include estimated completion date):

Activities

Kindergarten

- Introduction to Ozobots
- Ozobot Basic Training Lesson 1
- OzoBots Color Codes Activity involving shapes

1st - 2nd Grade

- Introduction to Ozobots
- Ozobot Basic Training Lesson 1
- OzoBots Color Codes Challenge involving measurement

3rd Grade

- Introduction to Ozobots
- Ozobot Basic Training Lesson 1
- OzoBots Color Codes Challenge using geometric measurement

4th Grade

Fourth grade has a very difficult schedule. Trying to get them in as a group throughout the day poses many challenges. I do have one class of 26 fourth grade students who see me for 30 minutes every week.

- Introduction to Ozobots
- Ozobot Basic Training Lesson 1
- OzoBots Color Codes Challenge
- Ozobot Basic Training Lesson 2

5th Grade

Fifth grade has a very difficult schedule. Trying to get them as a group throughout the day poses many challenges. My goal is to have an after school club for up to 20 fifth grade students. If there are not enough fifth graders for the after school club I will open it up to fourth graders I do not see on a weekly basis. This group will not only work with the Ozobots, but also Tinkercad to create 3-D designs to print on the MakerBot Replicator.

- Introduction to Ozobots
- Ozobot Basic Training Lesson 1
- Ozobots Color Codes Challenge
- Ozobot Basic Training Lesson 2
- Introduction to Ozoblockly
- Ozoblockly challenge
- Introduction to Tinkercad
- Create and save a 3-D model using Tinkercad
 - Items will be printed throughout the week
 - The finished products will be displayed for all to enjoy
- Showcase

4th and 5th Student Showcase

Our business partner, teachers, parents, and other family members will be invited to attend the showcase. Students will demonstrate what they have learned during this student showcase. The showcase will begin with students giving an overview of the Ozobots and how they work. Students will describe the challenges they had during the project and how they solved the problems. Parents will have a chance to interact with the Ozobots with their students. We will present new challenges to complete as a family. Stations will be set up highlighting the different skill levels. We will display items made using the MakerBot. We will have one project printing during the showcase so parents can see it in action! Computers will be set up so students can demonstrate to parents how to design a 3-D model for printing.

Teachers

I will train the teachers how to use the Ozobots and Tinkercad throughout the year. Teachers will be able to check out the class set of Ozobots to use when we are not using them in the library.

Timeline

January

- Purchase Materials
- Decide on dates for After School Robotics Club
- Send letter of interest to 5th Grade students for After School Robotics Club
- If not enough respond, send letter of interest for 4th Grade students for After School Robotics Club

January/February:

- Become familiar with Ozobots/MakerBot
- Create a small group of students and/or teachers to serve as a test group with the Ozobots and MakerBot.

February/March:

- Train the teachers
- Start classes for Kindergarten-4th Grade
- Begin After School Robotics Club

April/May:

- Student Showcase for 4th and 5th grade students

How will the library sustain this project?

The library will be a hub of innovation with the products from this project. The materials will last for years to come. We will continue to train students and teachers on how to use the Ozobots and how to create items with the MakerBot. The MakerBot 3-D printer will be set up in the library to continue to excite students and encourage them to become innovators. There is room in the library budget to purchase extra filament for the MakerBot 3D printer as needed.

Library Director's signature: *Paula Gilman* Date: 10/31/16

Russell F. Date: 10.31.16
Signature of agent, office, or board to whom the Director reports

For PLAN use only:

Approved _____ Not Approved _____

PLAN Executive Director _____