

Glassboro Education Foundation, Inc.

Send the completed application to the attention of:

Dr. Robert Preston
Beach Administration Building
Joseph L. Bowe Blvd
Glassboro, NJ 08028

A. General Information

Applicant(s): Erin Pimpinella

School: J. Harvey Rodgers

Principal: Melanie Sweeney

Grade Level or Subject: STEM

Phone: (School) 856-652-2700 ext. 8226 (Home): 856-366-9826

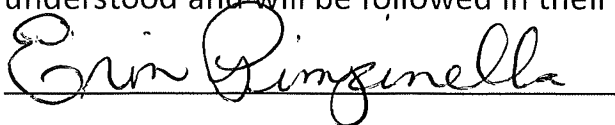
E-mail: epimpinella@gpsd.us

B. Statement of Assurances:

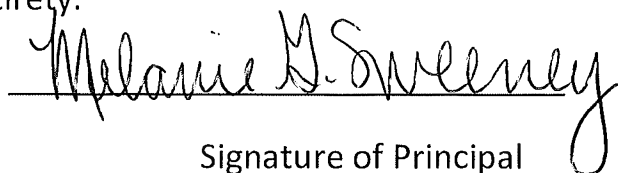
The applicant hereby assures the Glassboro Education Foundation that:

1. The applicant(s) meet(s) the eligibility criteria.
2. The activities and services for which the grant is sought will be implemented as written.
3. Any monies not expended within the school year shall revert back to the Glassboro Education Foundation, unless permission to carry it into the next school year is granted.
4. All publicity releases regarding a funded project will acknowledge the Glassboro Education Foundation and/or a particular mini-grant sponsor as the funding agency.
5. The grant recipient(s) will submit a final report summarizing the project's evaluation results.
6. The Board of Education authorizes the filing of this application.

We do hereby certify that all of the facts, figures and representations made in this application are true and correct to the best of our knowledge and that the assurances as stated above are understood and will be followed in their entirety.



Signature of Applicant



Signature of Principal

Please note: from this page on, please **do not include your name or your school** in any of your descriptions as all applications are coded to prevent bias.

C. Project Title and Description

Title of Project: Coding for Preschool and Kindergarten students

Subject Area(s): STEM

Approximate Number of Students Participating: 270

Project Starting Date: 3/2024 Project Completion Date: 6/2024

Need: Describe the problem or deficiencies that exist which require the improvements described.

During the 2022-2023 school year, I started to expose the students to coding. I started with coding unplugged activities. Students were asked to glue arrows to create a path for an animal to get food, drink and ending at their habitat. This proved to be very difficult for the students. They were frustrated and really didn't understand how to do it. I then used scaffolding to take them through the board step by step. This worked much better. I observed that my Kindergarten students struggled with this more than my Preschool students. In my second attempt, I simplified the directions from 6 different arrows to 4. Once again, students struggled. I demonstrated how to use the directional arrows using our bodies and the classroom rug. We made it like a game where they had to tell me where to go and what to do and I followed their directions. This worked much better. However, many of my students still were not able to successfully complete the unplugged activities in small groups, in pairs or individually. I need to find a more fun, engaging way to teach coding to our youngest learners.

Strategy: Briefly describe your plan to alleviate the need/problem.

Younger students need a more hands-on approach to coding. With Sphero Indi cars, they learn coding through play and see instant results of what they created. They can make modifications by simply moving colored tiles around. Sphero's Indi Cars will help students develop the foundational skills they need to understand basic concepts of coding. Indi Cars promote problem solving and computational skills. Students will use decomposition, pattern recognition, algorithmic thinking, abstraction, counting, measurement, spatial relationships, and shapes. Preschool and Kindergarten students have a natural curiosity and a drive to figure out how things work. They need to be given

opportunities to solve problems in a logical and creative way. When interacting with Indi cars, students will learn perseverance as they will have to keep trying and learning from their mistakes. They will be challenged to think differently by breaking down big problems in order to solve them effectively. Students will be given a chance to be creative and design something on their own with confidence. They will collaborate with each other in a small group setting and be motivated to work together in a fun and exciting way.

In this first year of implementation, the lessons will be taught to both grades. Moving forward, I would teach these lessons to Preschool students so by Kindergarten they are comfortable with using Indi Cars and have already been taught the foundational lessons. Therefore, they should be able to complete more of the difficult challenge tasks after a few classes of review.

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D. Objectives, Activities and Evaluation Techniques

Objectives	Program Activities to Accomplish Objectives	Completion Date	Evaluation Techniques
<p>Lesson 1: Students will identify key parts of Indi and explain what they do. Students will teach someone else about Indi and how it works.</p> <p>Lesson 2: Students will use their senses to describe what they see. Students will teach Indi when to stop rolling using red and purple color tiles.</p> <p>Lesson 3: Students will show Indi how to turn left or right. Students will design a route around obstacles for Indi to follow.</p> <p>Lesson 4: Students will show Indi how to turn slightly left or slightly right. Students will design a route around obstacles for Indi to follow.</p> <p>Lesson 5: Students will help Indi move through the classroom at different speeds. Students will explain why they move in the classroom, the hallways, and the</p>	<p>Lesson 1: Identify parts of Indi such as wheels, lights, power button, motor, etc.</p> <p>Lesson 2: Describe Indi cars using senses. Determine the car's reaction to the green and yellow tiles and explore how the car reacts to different distances.</p> <p>Lesson 3: Identify meanings of traffic signs. Determine the car's reaction to the red and purple tiles at various distances. Create a path using green, yellow, and purple tiles.</p> <p>Lesson 4: Determine the car's reaction to the orange, teal, blue and pink tiles. Create a path around a 1-2 student(s) sitting on the rug.</p> <p>Lesson 5: Identify school routines and expectations. Build a directional path using the tiles for how to get to a specific school</p>	<p>Dates are subject to change due to supply arrival, schedule and accessibility to students.</p> <p>Lesson 1: March 1, 2024</p> <p>Lesson 2: March 8, 2024</p> <p>Lesson 3: March 15, 2024</p> <p>Lesson 4: March 22, 2024</p> <p>Lesson 5: March 28, 2024</p> <p>Lesson 6: April 12, 2024</p> <p>Lesson 7: April 19, 2024</p> <p>Lesson 8: April 26, 2024</p> <p>Lesson 9: May 3, 2024</p> <p>Lesson 10: May 10, 2024</p> <p>Lesson 11: May 17, 2024</p>	<p>Teacher observations</p> <p>Checklist of objectives</p> <p>Unplugged coding</p> <p>Challenge Task completion</p> <p>Anecdotal notes</p> <p>Performance assessment</p> <p>Student drawings</p>

<p>playground in different ways.</p> <p>Lesson 6: Students will help Indi turn and move through the classroom. Students will explain how to get to different places in our school from our classroom.</p> <p>Lesson 7: Students will identify the parts of a map. Students will create my own map and incorporate Indi's color tiles to create routes for Indi to follow.</p> <p>Lesson 8: Students will identify patterns around me. Students can correctly identify what comes next in a pattern. Students will complete a pattern to successfully guide Indi.</p> <p>Lesson 9: Students will identify patterns that repeat or loop. Students will make patterns that loop.</p> <p>Lesson 10: Students will identify cycles in nature. Students will correctly identify what comes next in a pattern. Students will demonstrate my understanding of natural cycles by creating a looping sequence for Indi.</p> <p>Lesson 11: Students will measure and express distances using Indi's color tiles. Students will accurately</p>	<p>location from the classroom.</p> <p>Lesson 6: Identify places in the school they visit outside of the classroom. Using transitional words, give directions from classroom to a specific location. Complete an unplugged activity where they help their partner navigate through different obstacle courses by giving clear directions. Students will create a path using the colored tiles and following the directions of another group. Students will adjust the directions as needed taking speed into consideration. They will test the path with the Indi car.</p> <p>Lesson 7: Identify what a map is and its purpose. Identify a compass and directions north, south, east and west. Create a simple map of a real or fictional place. Create scenario for the Indi Car to travel using colored tiles and their maps. Test out the route using the colored tiles and adjust accordingly.</p> <p>Lesson 8: Listen to a book about patterns and make patterns using bodies. Play a game "I do. We do. You do." Make patterns with colored tiles. Create a color pattern for Indi to follow. Extend the</p>	<p>Lesson 12: May 24, 2024</p> <p>Lesson 13: May 31, 2024</p> <p>Lesson 14: June 7, 2024</p> <p>Lesson 15: June 14, 2024</p>	
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<p>predict how far Indi will travel.</p> <p>Lesson 12: Students will measure distances using Indi's color tiles. Students will explain the intended path Indi will follow.</p> <p>Lesson 13: Students will measure distances using Indi's color tiles. Students will describe a sequence of events with pictures and my own words for others to follow.</p> <p>Lesson 14: Students will create a path for Indi that represents a story arc. Students will represent the setting of a story with things they make. Students will develop a plan to retell a story.</p> <p>Lesson 15: Students will make modifications on their path to include as many color tiles as possible. Students will collaborate with other groups and combine ideas.</p>	<p>pattern.</p> <p>Lesson 9: Describe a pattern that loops. Build a 4-sided path. Build a loop with the least number of tiles.</p> <p>Lesson 10: Identify the steps of a natural cycle such as seasons of the year or butterfly life cycle. Represent the cycle using colored tiles. Create a loop using colored tiles to represent the natural cycle.</p> <p>Lesson 11: Identify measurement tools. Measure classroom objects with tiles. Predict how far Indi will travel before stopping on its own, after a red tile and after a yellow tile. Measure the distances. Make predictions and experiment with patterns using yellow and green tiles.</p> <p>Lesson 12: Recreate up to 4 paths with specific measurements. Challenge card assessment will be administered. Explain the path they created for the Indi car. Observe and evaluate Indi's movement in relation to the path description. Make adjustments as needed.</p> <p>Lesson 13: Build fun and interesting paths for Indi using colored tiles. Draw the path using colored pencils and graph paper while</p>	
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	<p>keeping track of the distance between the tiles. Describe the sequence of the movement within the path to another group for them to recreate the path. Identify errors written within the code and debug as necessary.</p> <p>Lesson 14: Review a previously read story. Identify the start, the problem and the solution of the story. Draw/write the core parts of the story. Create a story path using colored tiles. Retell the story using the colored tiles and Indi cars.</p> <p>Lesson 15: Create a half marathon for Indi using as many tiles as possible (17-18 tiles ideally). Consider the distance between the tiles so Indi can move the furthest. Draw the path using graph paper.</p>		
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E. Itemized Budget

Materials/Equipment		Services		Evaluation Techniques	
<u>Item(s)</u>	<u>Cost</u>	<u>Item(s)</u>	<u>Cost</u>	<u>Item(s)</u>	<u>Cost</u>
Indi Classroom Pack	\$1500.00	3 year warranty and product repair			
3 Indi Student Kits	\$450.00	for classroom pack (optional)	\$109.99		\$0
		3 year warranty and product repair			
		for 3 student kits (optional)	\$98.97		
Sub-total: \$1,950		Sub-total: \$208.96		Shipping: \$102.33	
				Grand Total \$2,261.29	