Toy Design as a Vehicle for

Vertical Collaboration

in a

K-12 Setting

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Workshop Outline

- Introduction
  - Why are you here?
- Project Description
- Stories from the front lines...
- Lessons Learned/Concerns
- Brainstorming Ideas
- Conclusion

Introduction

-Aruna Chavali

-Engineering degree from Smith College- engineering with a liberal arts background

Project Description

During a year long engineering elective for girls in Class XII, students worked in teams of 4 to **design** and **prototype** a toy aimed to **encourage**, **inspire**, and **teach** STEAM topics to girls in Class IV.

What's the importance of this project?

- Role models- the older girls serve as role models for the younger girls; keep them engaged in STEM topics
- Engineering a product to fulfill a **specific social need** with built in **client feedback**

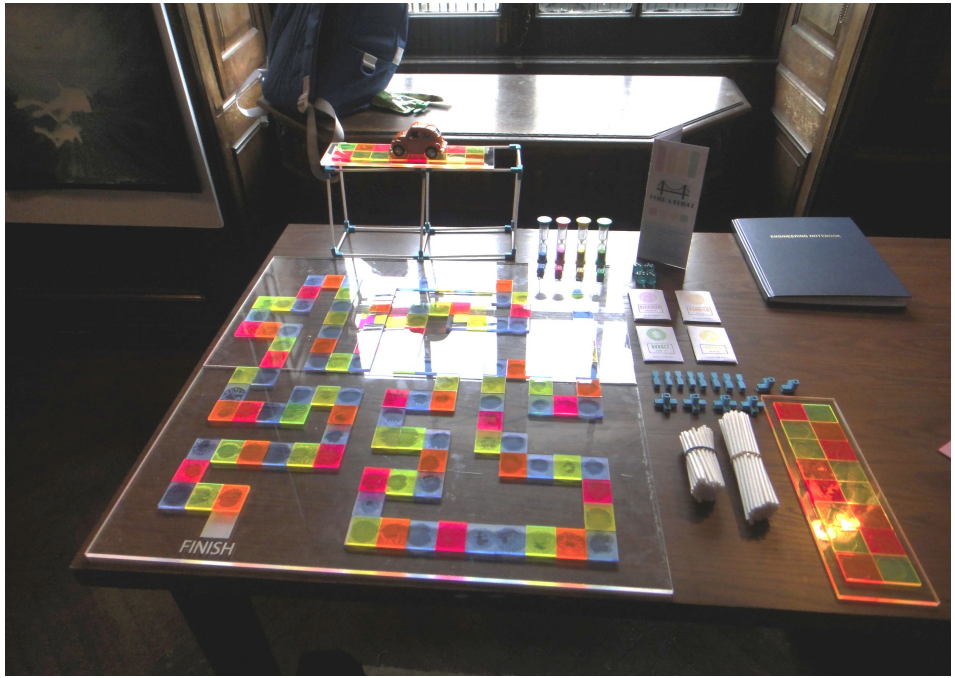
Steps

- Initial brainstorming sessions with VI graders
- Go back to the VI graders with prototype to garner feedback
- Incorporate feedback and then showcase ***final*** prototype

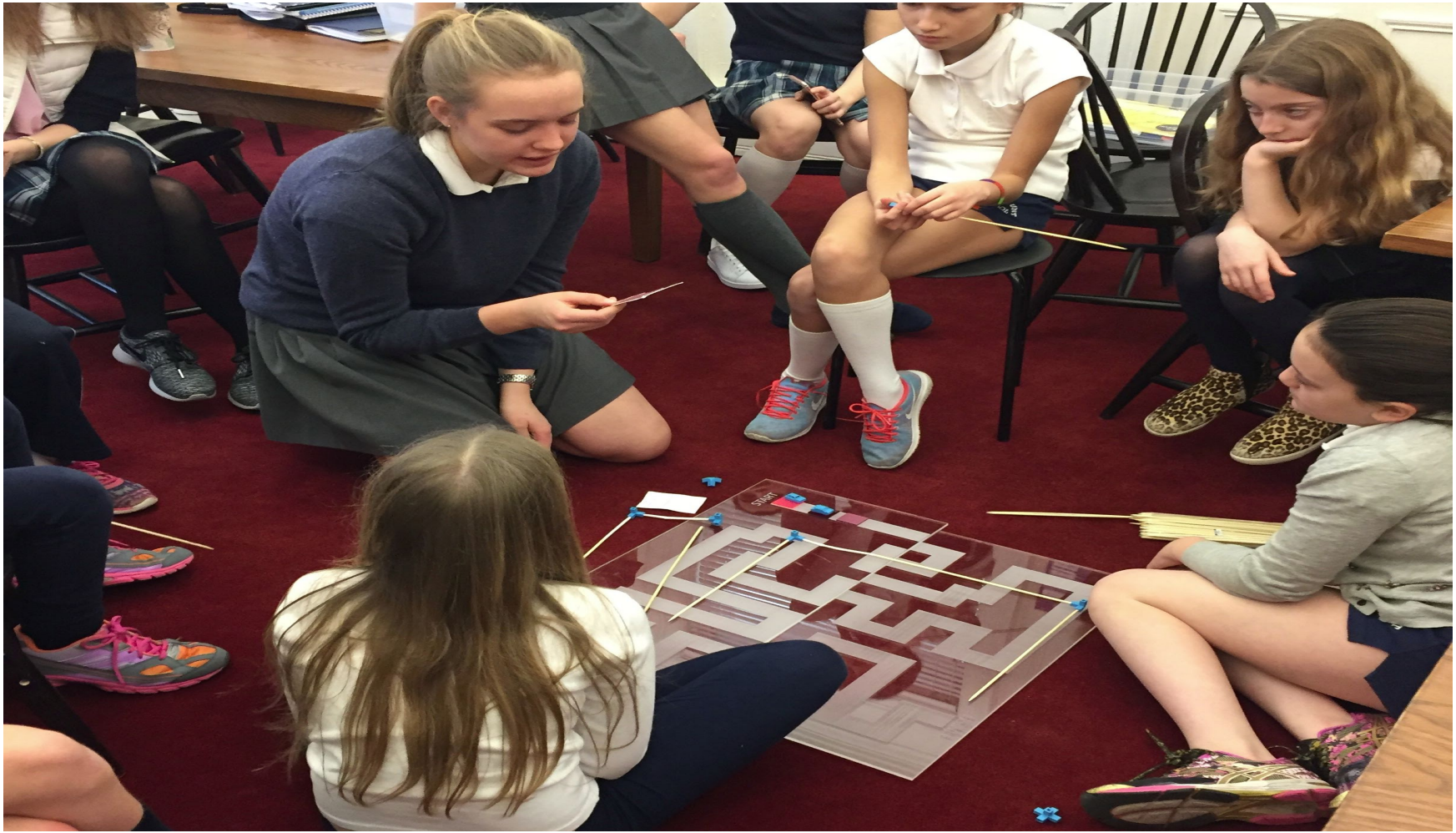
Final Products- 4 Toys

1. Bridge Builder: Board game with bridge construction
2. Zip It! : Zip line construction kit
3. Roomavate: Room construction kit specific to clients in the game
4. Tower: Tower Board game with tallest tower construction

Bridge builder- One story...



- Bridge building game with an accompanying board
- Each colored block on the board represents a building piece that can be used to construct the bridge that will carry a load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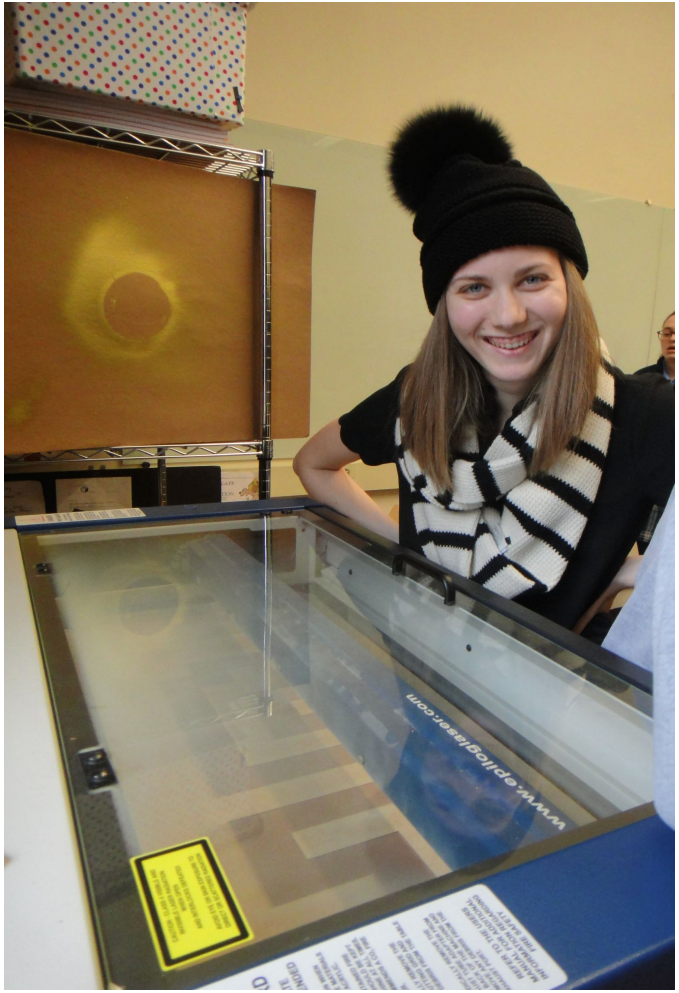
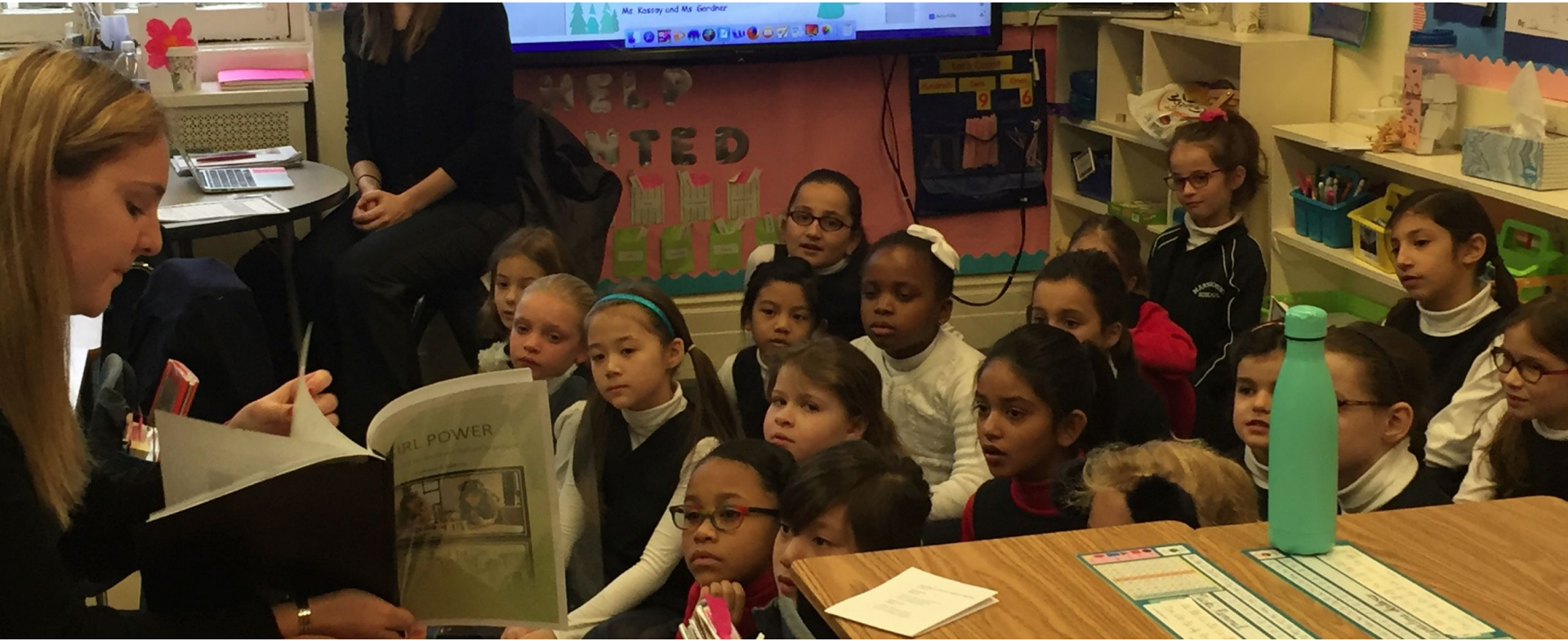

www.epiloglaser.com

Children's Book for "Introduce a Girl to Engineering Day" inspired by Rosie Revere Engineer


Ms. Kassay and Ms. Gardner
HELP
NTED
IRL POWER

we will have girls from Class 12 share books they wrote
with us. We will complete our Before/After Peter Stuyvesant
project this afternoon.
Before morning meeting, please do the following:
1. Greet your teachers.
2. Put your homework folder in your desk.
3. Write about your Long Weekend News.
Love,
Ms. Kassay and Ms. Gardner
HELP
the Sassy Squirrel

Concerns

- Time
  - Schedule differences
- Buy in from students, teachers and admin
- Age-appropriate, content-appropriate projects
- Existing Big Sister-Little Sister programs in many settings- redundancy?
- Can Big Sister-Little Sister programs extend to include STEM related projects?

Small group discussion prompts

- What is the value in vertical collaboration? What are the BIG objectives?
- Do the projects have to be long-term or short-term one time interactions deliver the same value?
- How can the value of this type of collaboration be communicated to all involved?

Brainstorming Ideas

Thank you!

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