

Kindergarten Engineers!

As part of our STEM (Science, Technology, Engineering, and Math) curriculum here at St Leo's, we have embarked upon a challenging, ambitious project of teamwork as part of the "Engineering is Elementary" project from the Boston Museum of Science. Here's what the experts say about engineering in the classroom:

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.

Research suggests that engineering activities help build classroom equity. The engineering design process removes the stigma from failure; instead, failure is an important part of the problem-solving process and a positive way to learn. It is equally important that there's no single "right" answer in engineering; one problem can have many solutions. When classroom instruction includes engineering, all students can see themselves as successful.

Come with us as we learn the engineering process, work as a team to figure out problems, and always think of ways to improve!

We are engineers!

We are engineers!

We can solve problems,

Oh, we are engineers!

Ask, imagine, plan.

Then we create.

Improve to make it better.

Engineers are great!

(ask your kindergartener for help in signing our song!)

First, the problem: we read about a brother and sister who were outside playing with their dog on a hot summer day. When they stopped to rest, they discovered to their dismay that Penny, their dog, was unable to get cool. Penny found herself very uncomfortable in the hot summer sun! What, they wondered, could they do to help?

Kindergarten worked together to come up with some ideas. We discussed what ideas would work, what wouldn't be sensible, and what ideas could be combined to become even better. A doghouse with a fan? A pool filled with ice? A roof to shade the sun?

The book led us to create a shelter for Penny to protect her from the sun. What materials would work best? What are some problems we may face as we work through our solutions? (For example, will a dog stay under the shelter like she's supposed to?)

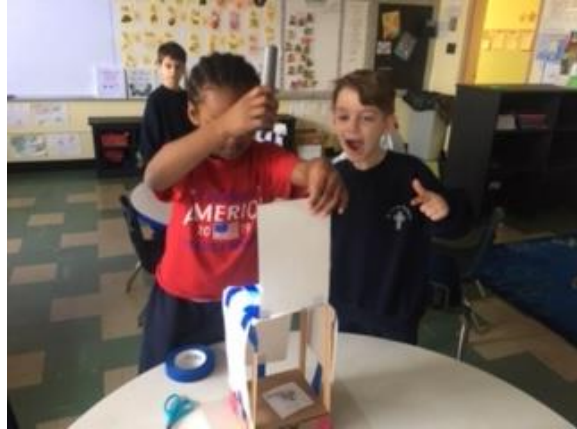
We started out by examining and critiquing different materials.

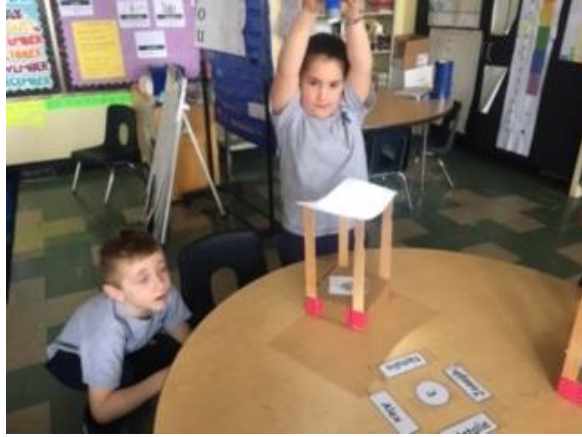




Then we talked about how our shelter should look - what shape? How big? Remembering our goal is to keep Penny in the shade, we used flashlights to simulate the sun. What size/shape roof would best keep Penny safe? Don't forget, she's able to move around on her leash - don't let her get into the sun! With scissors and tape handy, our engineering teams got to work!







Then it was time to put it all together! Using what we learned from trial and error, each group used the materials it deemed most effective to create a shelter of the perfect size and shape. Here's what each team had to say:



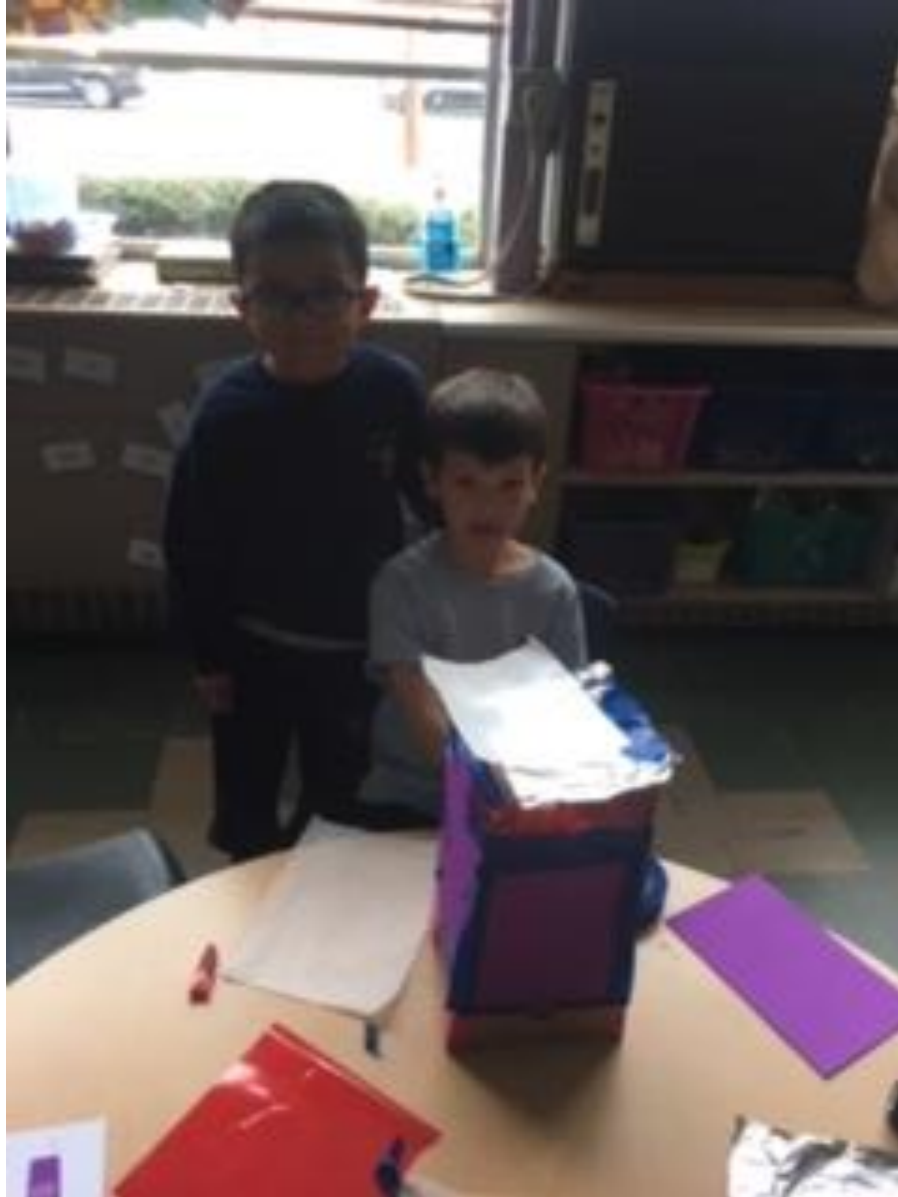
“We made a little door using the foam. We tested it and the light didn't go through.”

Gaetano and Natalie, engineers



"We tried to keep Penny out of the sun. We used extra tape because it was hanging. We found out that the roof wasn't long enough so we made it longer."

Christopher and Isabella, engineers



“We used the tin foil and the foam. We decided to use the foam on the sides so the sunlight won’t go through. We used foil so the sun will bounce off.”

Dominik and Francisco, engineers



“We used a lot of tape so the sunlight doesn’t bother her. We made a door so she can get out.”

Mia and Miguel, engineers



“We put some walls to block the sun. When we used the flashlight, the sun didn’t go through. Penny didn’t get hot!”

Asha and Ana, engineers



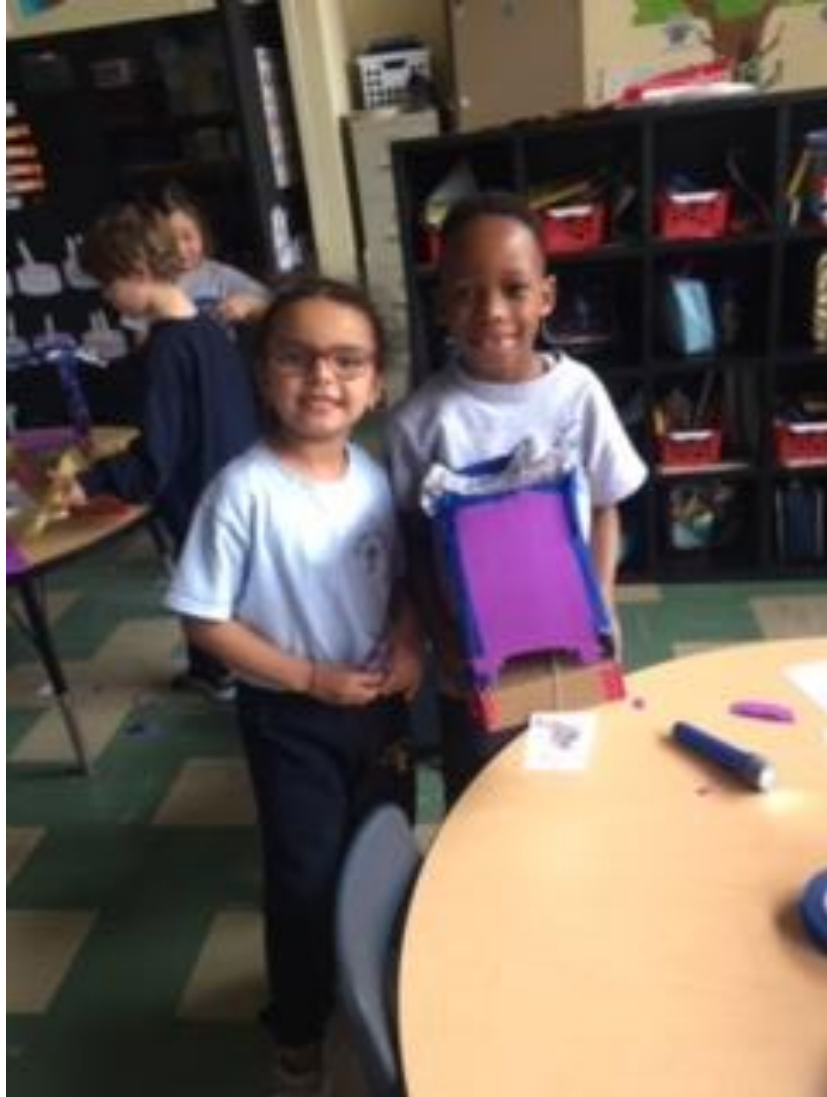
"We did so much cutting so we could make the door. When the sun shines on the purple foam it won't hit Penny."

Maximus and Chisara, engineers



“We cut the tin foil in half and put it on the roof. We put tin foil on the sides because we thought it would be good to keep the sunlight back.”

Natalia and Lexi, engineers



“We put the tin foil on the roof so the sun could reflect. We put the sides up so no sun can come in. We made a door so she can get out.”

Afi and Sophia, engineers



“We made the roof bigger and shadier; it's better because if Penny walks out, she won't be in the sunlight.”

Joseph and Alexander, engineers



**“We needed sides to keep Penny in the shade.
We need to improve our design by adding a
roof next time.”**

Gabriel and Farrah, engineers

