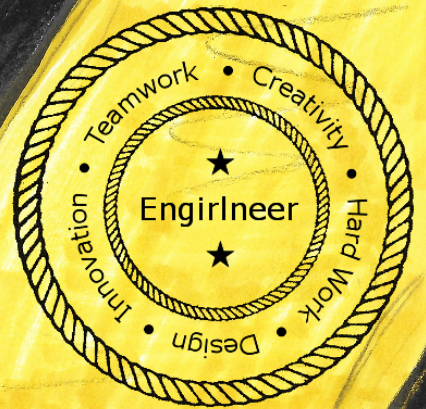


# The Engirlneers Market The Speed Bump





Learn how to become an



at

[www.engirlneer.com](http://www.engirlneer.com)

©2018 All rights reserved.

ISBN-13: 978-1720952138

ISBN-10: 1720952132







Tatiana slung her bag over her shoulder and shoved her phone in her pocket. She had on a new green rain coat and wellingtons to protect her feet from the puddles that specked the sidewalks. It was the first day back to class after spring break, and Tatiana looked forward to seeing her friends after such a long time away.

She stopped briefly in the kitchen to give her mom a kiss goodbye and hug her little sister before she headed out the door towards school.

Tatiana loved the smell of spring in the air. This winter had dragged on far too long. It seemed like she was constantly helping her parents shovel the sidewalks and throw salt on the steps. As she approached her friend Betty's house, Tatiana noticed the cat house she and her fellow engineers had set up late last fall for a local feral cat.

*Mama Cat is so lucky we got her cat house set up when we did, Tatiana thought to herself. She probably wouldn't have survived this winter without it.*

As if she could hear Tatiana's thoughts, Mama Cat appeared from between the garden fence. Still wary of humans, Mama Cat stopped and watched as Tatiana approached her. Tatiana walked quickly by her, and as soon as she had passed, Mama Cat ran into her house, leaving Tatiana behind.







As Tatiana rounded the corner to Betty's, the rain turned from a downpour to a light mist. She lifted her hand to ring Betty's doorbell, but before she could extend her finger, her friend threw open the door with a big grin on her face.

Betty had on a new raincoat and wellingtons as well, but in a bright pink that made Tatiana shield her eyes to protect them from the neon glare the clothes emitted. Betty grabbed an umbrella from the stand by the door and the two friends headed out.

Tatiana gestured towards the cat house. The two friends watched to see if Mama Cat would emerge. "I guess she must be ready for bed," Tatiana commented.

"Must be," Betty said. The two started to walk. "I think I'm going to call her 'Penny'," Betty told Tatiana. "Now that spring is here, and she shows no signs of leaving, I think she should have a true name, and she's definitely one lucky penny."

Tatiana nodded in agreement and said, "I'm surprised she stuck around, I figured she would've taken off by now. The engirlnegers now have a mascot." Betty smiled.







As they walked, the rain stopped, which made the trek to class much more fun. They splashed through the puddles, dancing to school. As Tatiana and Betty made their way through the crosswalk, a car sped by, completely ignoring the students in the middle of the road. Dirty rain water splashed high from a pothole and came down hard directly on top of them. Despite the protection of their rain gear, the girls were drenched from head to toe.

“HEY!” screamed Tatiana. “That car almost hit us!”

“I know!” Betty exclaimed loudly. “They didn’t even slow down!”

“I’ve been saying for years that this crosswalk needs a speed bump. People cut through the neighborhood to avoid the traffic light down the street. Something needs to slow them down!” Tatiana said.

“Maybe we should talk to Principal Meadows,” Betty said.

“I don’t know if she would listen to a couple of kids,” Tatiana shrugged.

“Tatiana! You’re the best traffic engineer I know! If you think this crosswalk needs a speed bump, there should be a speed bump!” Betty declared.

Tatiana thought to herself. She didn’t know if a speed bump was the best option, but she knew something was needed. She worried about her fellow student’s safety.







“Okay,” Tatiana said, “but before we talk to Principal Meadows, I want to do a traffic study, so I have data to back up my request.”

“What do you need from me?” Betty asked and pulled out her engineer notebook from her backpack to take notes and list the ways she could help her friend.

Tatiana thought aloud. “Well,” she began, “we need to collect data on the number of students crossing, and the number of cars. We should get the data over a few days,” Tatiana explained. Several days of data would allow her to calculate an average and determine how many cars and students are at the crosswalk on a typical day.

“HmMMM,” Betty said. “I can help, but I have volleyball practice tomorrow morning,” she sighed.

“I bet we can get the other engineers to help,” Tatiana said, a little elated to have a plan forming about how to solve the problem of the dangerous crosswalk.

“That sounds great! Let’s ask them in math class!” Betty exclaimed. “I could even help make a schedule, so we have all the days and times covered you think we’ll need data for!”







Once in class, Tatiana quietly explained the situation to Elan, Sally, Gillian, and Chloe. The girls were all thrilled to help. Everyone agreed something needed to be done about the crosswalk to make it safer.

“It’s not just getting soaked that’s the problem, either,” Gillian chimed in. She explained to her friends how she had watched a group of student cyclists nearly get hit the previous week. While the student crossing sign was clearly posted, most adults just zoomed through it. “It really isn’t safe,” she concluded.







Tatiana, with her expertise in traffic engineering, was named the project leader by the other engineers. She delegated by having Betty organize the girls' schedules so that they would have the week's drop-off and pick-up times covered to collect data to make the traffic study detailed. One girl would record the number of people using the crosswalk and one would record the number of cars in the road. Tatiana would also get the chance to use her new radar gun to determine how fast cars were going. She even figured out a way to connect it to a program on her phone, and the data would be recorded instantaneously. Tatiana would use the data to prove a speed bump, or other way to slow traffic, was necessary.



Unfortunately for Betty, organizing the schedule was more difficult than she thought it would be. To begin with, she and Chloe had volleyball practice on Tuesday morning and Thursday afternoon. The other engineers' schedules were just as busy, with activities before and after school. The task of organizing the schedule, which at first seemed simple, had quickly turned very difficult. Instead of feeling daunted, Betty set her mind to completing the task. She decided the easiest way to compose a schedule wasn't to have the girls write down schedules for her to organize, but instead to make a list of the days and times they needed coverage and have each of her friends write her name on the ones she was available for.

This made the task so much easier, and gave her friends control over their own schedules while allowing them to help with the data collection. By the time her notebook had been given to each of her friends, each time slot had been picked by no less than three engineers. They would have the girl-power to get the information they needed! At the end of the day, the girls met to discuss the data-gathering process. They also discussed safety. They already knew the crosswalk was dangerous and needed to make sure their research didn't put anyone in danger.



The engineers spent the rest of the week collecting data. At the end of the week, they met up at the crosswalk to give their observations to Tatiana, who spent the weekend going through her friend's data. She then input it into a computer spreadsheet program that was able to determine the average number of people and cars which impacted the crosswalk.



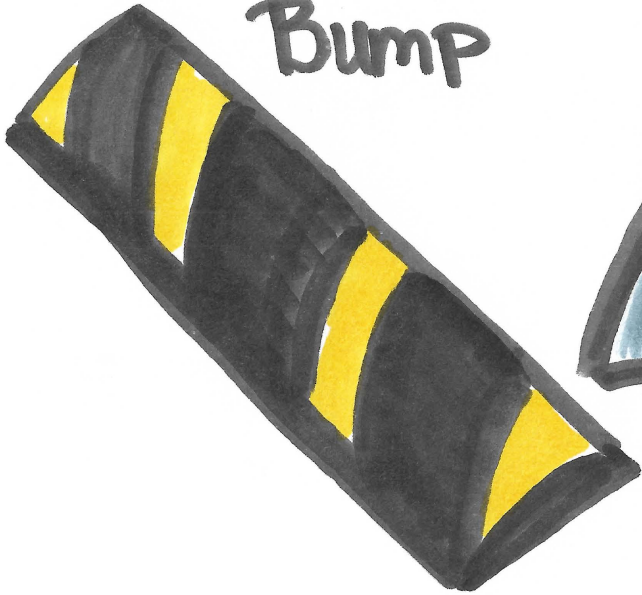




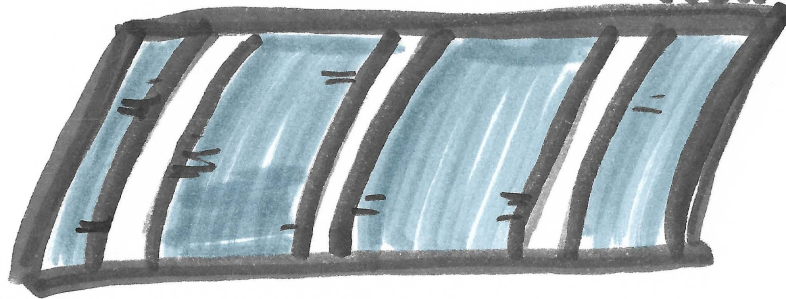
Once she had the data organized, she searched through several books over traffic control devices to determine which type would be the best solution for the crosswalk. She narrowed her options down to three devices, a speed bump, a speed hump, or a speed table.



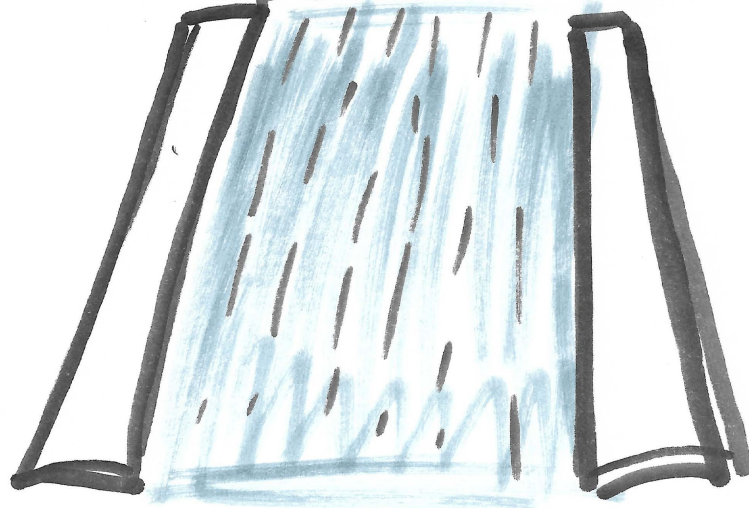
Speed  
Bump



Speed  
Hump



Speed  
Table

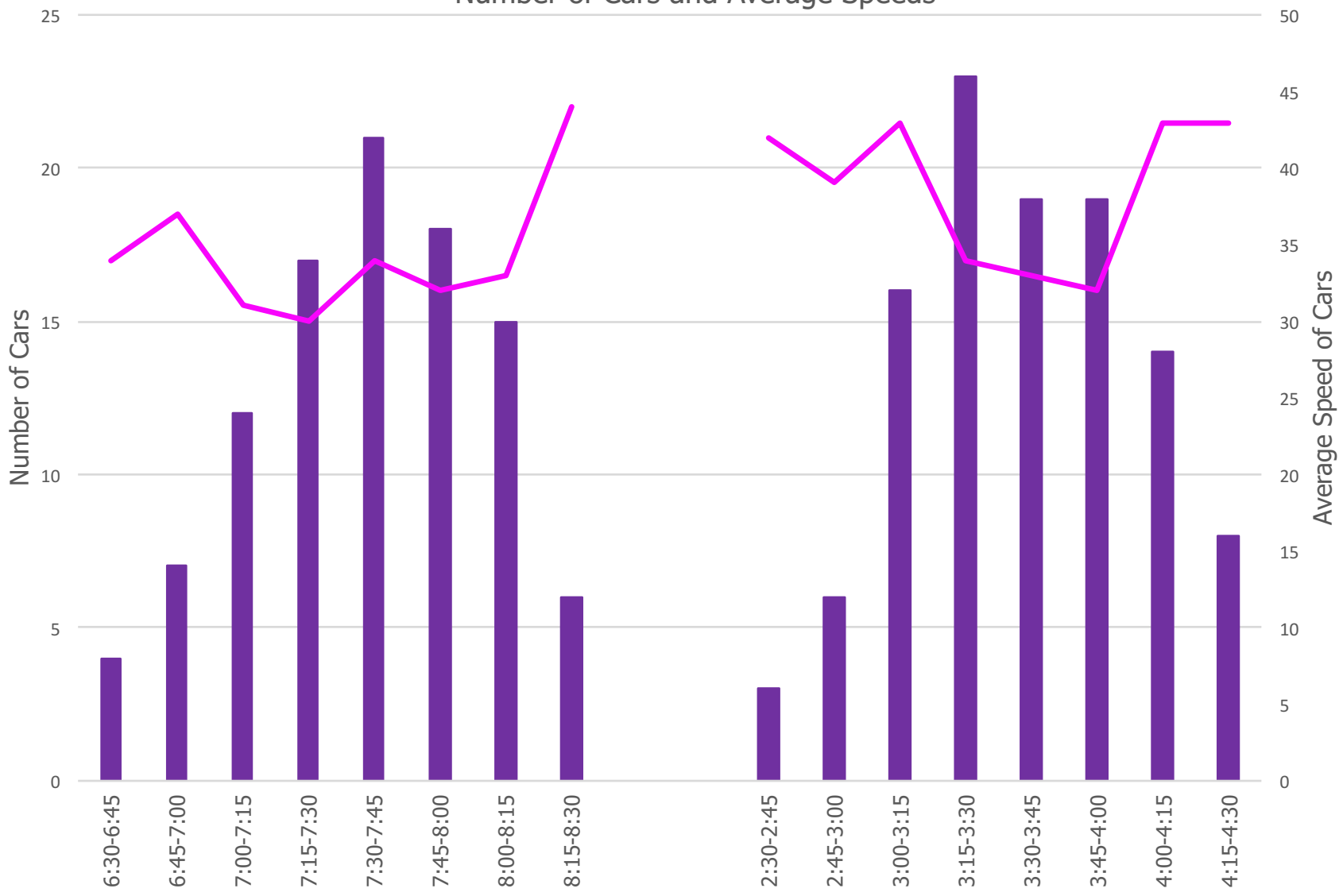




Speed bumps are shorter, more abrupt raised areas of a road that force cars to slow down. A speed hump is a longer version of a speed bump, allowing cars to go slightly faster. A speed table is even longer than a speed hump, and has a flat top. Based on her data, Tatiana determined cars typically go between 30 and 45 miles per hour down the street, and in order for her classmates to be safe, cars should only go around 5 to 10 miles per hour near the school. Tatiana concluded that a speed bump would slow traffic the best.



### Number of Cars and Average Speeds





To support her decision, she made several charts to showcase their observations and compiled a report on the findings. She was confident in her method and solution and looked forward to sharing it with Principal Meadows.







On Monday, Tatiana took her report into Principal Meadows' office. Principal Meadows listened intently as Tatiana explained her method, the engineers' observations, and her conclusion that a speed bump was needed. "I'm impressed with your effort," Ms. Meadows said. "Unfortunately, we don't have the money to build a speed bump."

"But Principal Meadows, students' lives are in danger!" Tatiana exclaimed.

"I understand your frustration, Tatiana, but we begin planning our budget for the next school year at the end of the previous school year. If you want a speed bump, we need to get it approved by the School Board for next year," she explained.

"Well, how do we do we do that?" Tatiana asked.

"You would need to put together a presentation, then explain to the School Board why a speed bump is necessary."

"A presentation?" Tatiana asked. Her stomach began turning. She hated public speaking. It was one thing to stand up in front of classmates and present your ideas, but in a room full of strangers ... she wasn't so sure she could do that.

"You will do great, Tatiana. You presented your findings to me, and it's obvious you know the ins and outs of your study and the principles behind it, you just need to explain it to others," Principal Meadows said.



Tatiana was still unsure. Could she present in front of other people as easily as she had Principal Meadows?

“I’ll tell you what,” Ms. Meadows began, “If you prepare your presentation, you can come practice it with me, and we can go over the best way for you to give it to the School Board. How would that be?”

Tatiana nodded and let out a sigh she didn’t realize she had been holding. She felt better about the prospect of a full presentation to the School Board. If she had the opportunity to practice in front of Ms. Meadows, she wouldn’t be so nervous.



As Tatiana left Principal Meadows' office, she ran into the rest of the engineers leaving math class.

"How did your meeting with Principal Meadows go?" Elan asked.

"Okay," Tatiana said. "Principal Meadows thinks the speed bump is a good idea, but she doesn't have the authority to fund it. She says I will have to give a presentation to the School Board at their next meeting to try and get them to put it in for next year," Tatiana explained to her friends.

"Don't worry, Tatiana, you'll be great!" Betty shouted, more excitedly than she should have in the hallway. Several other students stared at her as they walked by, confused looks on their faces. Betty noticed them watching her and lowered her voice. "We will help you," Betty said so quietly Tatiana had to strain to hear her.

Tatiana wasn't so sure she could do it. "I know I can put together the data," Tatiana explained to her friends, "but for this kind of presentation, I think it's going to have to be visually appealing as well as functional. I'm not so sure I know how to design that kind of presentation."

After a moment of thought, Chloe said, "I wonder if Shaziah from my art class could help put together the presentation. She's the best artist in the school and has a great eye for technical design. She even helps run the art program's online gallery."







Tatiana thought Shaziah sounded like the perfect person to talk to about her presentation. It was going to take great visuals to help her convince the School Board to put in a speed bump. Tatiana knew she could organize the data, but she had no idea how to make it influence an audience.

Chloe and Tatiana organized the data and other information they had gathered to have a starting point for their discussion with Shaziah. Chloe would talk to Shaziah and find a night that they could all meet to discuss the presentation.

As it so happened, Shaziah was available that afternoon to meet and discuss the project with the engineers. She was excited to combine her love of the arts with her interest in computer science and math. She was thrilled to be part of the project.







Shaziah explained to Tatiana what she wanted to do with the presentation. Although Tatiana usually liked to be in complete control of her projects, she also knew her limitations when it came to the design aspect of her presentation. She could trust Shaziah's abilities because Chloe trusted them, and she trusted Chloe.

After spending the afternoon going over the data with Shaziah, Tatiana realized she was right to trust her. She was an expert at graphic design. Tatiana knew she would make the presentation capture the School Board's attention.

Over the next few weeks, Tatiana and Shaziah worked continuously, fine-tuning the presentation. Tatiana gave numerous practice presentations, with the engineers and Principal Meadows acting as her audience.







When the day of the Board meeting finally arrived, Tatiana dressed in her nicest outfit, and took care to make sure she looked polished. For a presentation this vital, it was important she felt confident, and taking care of her appearance helped her to shine.







The School Board meeting was to be held in the school administration building. Tatiana had never been in the administration building before and felt nervous and excited as she turned the door handle. Once inside, Tatiana was overwhelmed by the number of people present. Her mouth dropped open. Shaziah moved in next to her and cleared her throat so Tatiana would notice her.

“Where did all these people come from?” Tatiana whispered to Shaziah.

“Well,” Shaziah said, slightly embarrassed as she pulled out a piece of paper from her pocket, “I handed this out to parents in the car line last week. I thought their support could be important in swaying the Board’s decision if they were undecided or couldn’t reach a consensus.”

Tatiana looked at the flyer Shaziah had put together and was blown away by her new friend’s design skills. It captured her presentation perfectly. Tatiana was excited to have Shaziah’s artistic skills on her team. Relief washed over her.







Tatiana's presentation was the last item on the agenda and sitting through the other items on the docket made her hands sweat. The anticipation started to make her nervous. She looked around the room and saw how many people shared her conclusion. As she looked to the back of the room she saw, standing near the door, the other engineers. They came to support their friend. They smiled, and Betty waved, obviously excited at her forbidden surroundings. Tatiana then turned to look at the newest member of the engineers, Shaziah.

Tatiana took several slow, deep breaths and thought about the hard work they had all put into this presentation. All of her friends had helped her prepare for this day. She would not let them down. When it was Tatiana's turn to present, she was more confident than ever.

She delivered her presentation flawlessly, and could tell she had captured her audience's attention. She answered questions from the parents and Board members. She was thrilled to see the parents were just as passionate about the speed bump as she was.



The Chairman of the Board thanked Tatiana for her great presentation, and the board members discussed the speed bump amongst themselves loud enough for the audience to hear. They referenced her presentation and Shaziah's flyer throughout their discussion. In the end, the School Board approved the speed bump unanimously.

"Tatiana, I want to thank you for your amazing presentation. I'm so impressed by your eloquence and knowledge. We are proud to see our students making a difference in our community," the Chairman informed her.

The audience gave Tatiana a standing ovation. She was elated. "Thank you, Sir," she said, more confidently than she would have before the presentation. "I would like to thank Shaziah," she said, and pointed to Shaziah in the audience. "Through her graphic design and artistic skills, she really made this presentation stand out. She also made the flyers that got the parents here."

"Well then, Shaziah," the Chairman said, "Job well done!"

"Thank you," Shaziah said and nodded, smiling.



The Chairman thanked the audience for attending and adjourned the meeting. As everyone filtered out, the rest of the engineers came running over and gathered around Shazia and Tatiana. "You did it!" Betty screamed at Tatiana and gave a little jump.

"WE did it," said Tatiana, and gave Shazia a high-five. "I couldn't have done this without you," Tatiana told her.

"That was so exciting!" Shazia said. "I can't believe we actually got the School Board to approve the speed bump!"

"Using our skills and expanding our team of talented people to make a difference in our community is what engineers do!" Chloe explained.







# The End



Laurana  
Winzo





