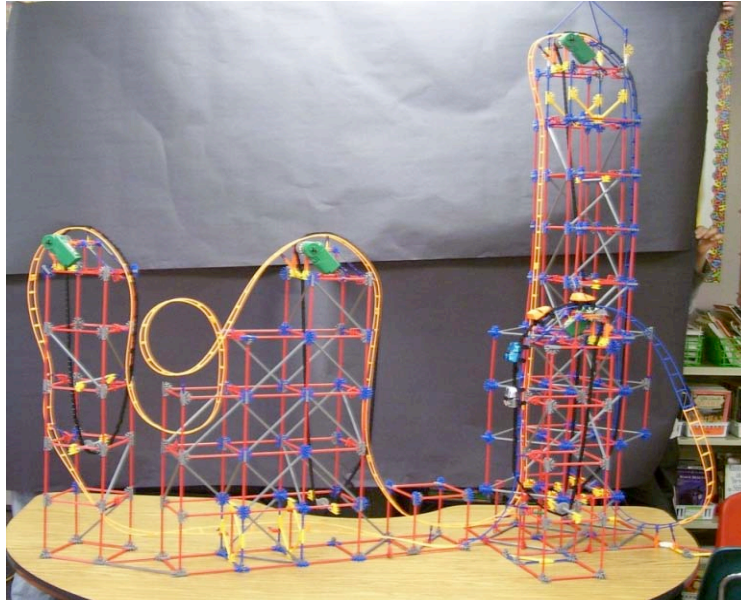


6th Grade Class Explores the Thrill of Roller Coaster Science



“Here you have it...the proof that the kids REALLY ARE learning (they just don't realize it!) They asked if I was ever scared that I might get fired because this stuff was just so much fun!”

Thanks to the TCU Innovative Educator Award, Kate Baumgartner and her 6th grade class from Feeser Elementary school ride the undulating waves of science! They have also entered in the K'NEXpert challenge which is a competition in which teachers can enroll their classes. There are different categories and the 5th and 6th grade category is amusement park thrill rides.

The contest deadline was December 31st. Here's the link the for challenge:

http://www.knex.com/Educators/classroom_challenge_info.php

Lo and behold, Kate and her students won the 6th Grade K'NEXpert challenge!

For more information on their winning project see the following website:

http://www.knex.com/Educators/classroom_challenge_08.php

The 5th and 6th Grade Indiana Science Standards Addressed are:

5.1.1, 5.1.6, 5.2.1, 5.2.3, 5.2.7, 5.3.11, 5.3.12, 5.3.13, 5.5.1, 5.6.1, 5.6.3, 6.2.4.

The K'NEX sets that were used to build the Hot Rider roller coaster were two of the Renegade Run sets and three Serpent Spiral sets. Before they built the Hot Rider, they built these coasters from the directions in the booklet. Says Kate Baumgartner and class, “That way, we knew how the K'NEX pieces fit together and what their potential was. There are four hills, one corkscrew and one loop built into our coaster. The roller coaster starts with one big hill and catches a chain to go up another hill. It loops around and catches a chain to go up a third hill. The coaster then goes under itself, does a corkscrew, and catches the fourth and final chain to go down the last hill. It then curves around to grab onto the chain to start the coaster again.

Our first roller coaster was the American Express. The American Express had loops, hills, and steep drops. It took two days to build it. Our second roller coaster (the Hot Rider) took about five hours to build because some of us stayed after school to finish it. It also didn't take as long because we then knew how to build a roller coaster. The Hot Rider has better speed and a much cleaner look! The American Express was sloppier and had a lot of trouble running consistently. The class decided after building it that we would create a different one. After careful consideration, we decided to come up with the Hot Rider. We used the tower from our old roller coaster to make our new one. The Hot Rider goes a lot faster and has a cooler design. We put a lot more effort and dedication into it. We worked very hard on both coasters but determined that the Hot Rider was much more successful.

The first hill of our roller coaster is 66 inches tall. The second and third hills, measured top to bottom, are 33 inches. The last hill is 24 inches tall. The whole roller coaster is 70 inches from hill one (front) to hill three (back).

To calculate the speed of our roller coaster, we got into pairs and used a stopwatch to time each hill three times. Then we found the average speed for each hill. We measured and counted how much track was used in each hill and the speed was represented as feet per second. We then converted the speed to feet per minute and finally miles per hour. Other modifications fine-tuned the 'ride.'

We learned a great deal from this project. It helped that we could build the coasters from the box first so we could see how the pieces worked together to create a roller coaster. We now know how to create an original roller coaster and we can't wait to build another one!"

Some of the comments from Kate's kids when asked what they learned were as follows:

"If you take your time and work together, everything will connect and the roller coaster will run smoothly."

"By making this roller coaster, I learned that the roller coaster takes more than just building it, you have to make sure everything is working right and nothing is out of place. I also learned that it's about teamwork and you have to work together as a team to succeed. Also, building this took time so being patient and cooperative with others is important, too."

"I used problem solving when it wouldn't run or if something wouldn't attach. I also learned how to solve speed and average speed of the roller coaster."

"I learned how to build a roller coaster from a drawing on a piece of paper to an actual model."

"I learned that the roller coaster has to have enough momentum and speed going down one hill in order to catch the chain for the next hill."

We hope you enjoy our roller coaster, the Hot Rider!

