

H-F High students, teacher help others learn how electricity works

BY NICK ULANOWSKI
nulanowski@hfchronicle.com

Jeannette LaPlante, a science teacher at Homewood-Flossmoor High School, and her physics students Danielle Rafalovitz, Marissa Diaz and Reece Toney used electrical devices to teach the fundamentals of electricity to parents and kids at the Homewood Science Center.

LaPlante's demonstration on Saturday, Feb. 26, focused on a plasma ball, a Wimshurst machine and Van de Graaff generator. Some observers said what these devices did reminded them of what magic looks like in movies, but LaPlante stressed that it's just science in action.

This presentation was one of the science center's STEM Saturday events in the Wexler Theater space. LaPlante and H-F science students demonstrated how electrons and electricity work. And they explained why you're more likely to get shocked from static electricity in the winter.

"Winter is less humid than summer," LaPlante wrote in her slide show called Shocking Science. "Dry air cannot hold extra electrons like wet air. So, electrons can build up in an object without being released into the air" causing static.

Attendees were encouraged to touch the



Photo provided by Jeannette LaPlante
H-F Junior Marissa Diaz demonstrates how touching a plasma ball makes her hair stand up.

Van de Graaff generator which has a large, metal ball on the top of it. When the generator was turned on and someone touched the metal ball, it caused their hair to stand on end.

A sheet of rabbit fur was placed on top of the generator's metal ball. When the generator was turned on, the fur moved

up and down like leaves blowing in the wind. When a person stood nearby with their hands and palms outstretched, they could move their hands around and the fur would move alongside the same directions as their hands. It was as if they had the power to move the fur telepathically, but it was just static electricity in action.

"It's a little bit like magic, but really it's just science," LaPlante said. "The human body is a great conductor. It runs on electricity all the time. Your muscles use it to contract – even your heart."

The plasma ball was also on full display.

"One of the cool things about the plasma ball is it really demonstrates energy transfers," LaPlante said.

Inside the plasma ball were pink electrical currents shooting out in all directions. When it was touched with a light bulb, the bulb lit up. This was because energy from the device excited the gas inside the bulb, LaPlante said.

When someone's hand was placed on top of the plasma ball, the electrical currents stopped moving in all directions and were mostly only going in the direction of the hand.

"When the energy's coming to me, I'm taking most of that energy. So, it doesn't have enough energy to go and incite the gas inside the tubes," LaPlante explained.

"Doing hands-on stuff is much more valuable than just learning about it through speaking," said Diaz, a 17-year-old H-F junior. "It makes us think about how much we know. And obviously, by teaching the kids, they learn new things."

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