HOLMDEL TOWNSHIP SCHOOL DISTRICT

"A COMMITMENT TO EXCELLENCE"

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INDIAN HILL STUDENTS "CHARGED" UP BY SCIENCE LESSONS

"Just how does electricity work?" is a question that has been on the minds of many students lately at Indian Hill Elementary School in Holmdel, New Jersey. And thanks to one of the school's Science teachers, students discovered the answer in a shocking way!

Thanks to a gift from the Holmdel Parent Liaison Group (PLG) and a grant from the Holmdel Foundation for Educational Excellence (HFEE), Science Teacher, Tom Woods, had (and will continue to have) the opportunity to provide students with an electrifying explanation with the use of a Van de Graaff generator. A Van de Graaff generator is an electrostatic generator that uses a moving belt to accumulate electrical charge on a hollow metal globe.

According to Holmdel's Supervisor of Science and Math, Alicia Killean, the study of electricity and magnetism appears in the district's Science Curriculum in several grade levels. The *Next Generation Science Standards*, which Holmdel implemented this year in grades 6-12, and will fully implement in all other grades by the start of the 2017-2018 school year, sets an expectation that students will be able to "demonstrate understanding of energy in many ways." The experiments conducted by Mr. Woods and the Indian Hill students helped them to "make observations and provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents." These are important Science and Engineering practices in which the new standards expect all students to engage.

Through Woods' recent presentations, students learned about positive and negative electrical charges, the difference between static and current electricity, the difference between insulators and conductors and even how to maintain personal safety during thunderstorms.

Woods has been conducting this lesson for the past 15 years and has seen the benefits of working with smaller groups throughout the week as opposed to having an all school assembly. When asked why he chooses to work with smaller groups, his response was very scientific and logical. “Two thirds of the building got to see it. The fourth graders saw it in groups of 25 and the sixth grade saw it in groups of 50. Other schools might hire a company to present a “Van de Graaff assembly” with 200 or more children in the audience, allowing just a handful get to engage in the experiment.” Overall, every child had the option of being part of this experiment. Some were even brave enough to try out the Van de Graaff on their own and really amazed their peers and teachers.

With the hands on component of the presentation, students discovered that electricity, like magnetism, is invisible. Graduates of Holmdel High School, but particularly those studying Science and Engineering, can probably still recall lessons like this. Hands on opportunities and research are a hallmark of the district’s K-12 Science program, which leads students to conduct original research by the time they are in 10^{th} grade.