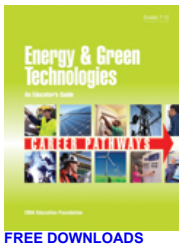

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Pfizer Professionals Introduce Teens to Two Powerful Apps: Math and Science

Classroom visit sparks interest in STEM

By Lesia Winiarskyj

Valerie Hoyt's classroom houses about a dozen chemical-resistant, resin-topped tables, two colossal wasps' nests, an oak limb, a whitetail deer with a glittery snowflake hanging from its antlers, a "No Whining" sign, and somewhere in the neighborhood of 200 empty Altoids tins hot-glued to the west wall. (A recycling project in progress, Hoyt explains.)

On a rainy Tuesday last month, Room 512 also played host to four scientists from Pfizer driving home a point she has made for the past 28 years: Science is fun, it's challenging, and it's everywhere.

Joining the team from Pfizer were New Britain High School (NBHS) math teachers Shane Clark, Eric Nelson, Todd Stigliano, and dozens of their students from the school's ninth grade academy, where 57 freshmen are participating in **Cyber-Challenge**, a program aimed at increasing their engagement and achievement in STEM subjects: science, technology ,engineering, and math.

Juan Colberg, Science Guy

Funded by a three-year grant from the **National Science Foundation** and administered by **CBIA's Education Foundation**, Cyber-Challenge seeks to strengthen the pipeline of ninth- and tenth-graders who enter their junior year enrolled in **Advanced Placement STEM classes** and who eventually pursue STEM careers. (STEM is critical to Connecticut's economic-base industries, which include precision manufacturing, green and sustainable technology, bioscience, and IT.)

Dr. Juan Colberg was one of four Pfizer employees who visited Room 512 to talk about the work he does and the science and math behind it. A research and development chemist, Colberg shared his own educational and career path and described the "long road to a new medicine," whose development includes discovery and exploratory phases, clinical data analysis, efficacy and safety studies, formulation, synthesis of compounds, screening, and registration in the United States and abroad.

Start to finish, the process can take 12-15 years—and billions of dollars.

"It's a risky business," Colberg said, adding that for each pharmaceutical that enters the market, as many as a thousand others fail. He noted that opportunities for failure are possible at every step in a drug's development, from conceptualization to commercialization.

Rx for Success
To demonstrate, he and his colleagues—Hahdi Perfect, a chemist; Dr. Nancy Figler, a veterinarian; and Dr. Mark Maloney, a chemical engineer—engaged the class in an oversized board game that illustrates a typical drug-development timeline. Students were invited to choose a health issue to target, name a new medication they would develop to treat or prevent it, and set the process in motion. Each milestone and setback in the drug therapy's development was quantified in terms of dollars and time invested.

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“The Pfizer lab was a great opportunity for students to see and learn about the product development process for medication in a manner that was fun and exciting,” said Shane Clark, lead teacher for Cyber-Challenge at New Britain High School.

“It’s one thing to be told that people use science and math outside the classroom; it’s another to meet some living examples,” explained Judy Resnick, executive director of CBIA’s Education Foundation. “One of our goals in Cyber-Challenge is to connect students with role models in STEM fields—real people solving real-world problems using principles in math, science, and other disciplines. We’re doing that every way we can—through field trips, virtual media, and classroom visits.”

In addition to Pfizer, corporate sponsors for Cyber-Challenge are General Electric, Northeast Utilities, and United Technologies Corp., all of which are doing similar outreach in classrooms in participating Cyber-Challenge schools: New Britain, East Hartford High School, and Wilby High School in Waterbury.