

Cleveland engineers 'SPARK' interest in STEM at Great Lakes Science Center

Summer Paris

Mike Frangiamore, an engineer in ArcelorMittal Cleveland's operations technology division, places a raw egg in the hand of a five year old girl visiting the Great Lakes Science Center and issues her a challenge: "Go ahead, try to break the egg with just your hand!"

The child is somewhat befuddled when she can't do it and passes the egg to her dad. Surely, he can crush it! But when dad can't do it either, Frangiamore starts to explain how something as fragile as an egg can be so incredibly strong. "There's a science in strength," he tells them, and the science of producing ever-stronger grades of steel is something he does every day in his job. In the case of the egg, it's the unique shape that gives it strength, despite its delicate shell.

Frangiamore and colleague Bobby Withrow, an electrical engineer in Cleveland's steel producing division, are both participants in the Great Lakes Science Center's prestigious SPARK (Scientists Passionate About Relaying Knowledge) fellowship program.

As SPARK fellows, they are helping the Great Lakes Science Center make science come alive for its visitors, all while featuring exciting STEM (science, technology, engineering, math) opportunities within the steel industry.

SPARK is part of the science center's partnership with Portal to the Public, a National Science

Foundation grant program that helps science centers and museums bring real-world STEM professionals together with the public to promote interest in science.

After participating in four professional development workshops led by Great Lakes Science Center education staff, Frangiamore and Withrow each developed a hands-on, interactive activity to showcase an area of STEM that is relevant to their everyday jobs at ArcelorMittal.

For Frangiamore, the unbreakable egg invites a conversation about ArcelorMittal's innovation in developing next generation advanced high

strength steels for cars that, like the egg, cannot be easily damaged.

For Withrow, something as simple as dominoes can teach the fundamentals of cause and effect that he encounters every day at the basic oxygen furnace. When a child stops by his booth at the science center and sets off a chain reaction of falling dominoes, Withrow translates it into a simple lesson about process controls in manufacturing.

"The science center does not have active researchers on staff, but we do have companies like ArcelorMittal Cleveland in our backyard with incredible expertise and stories of innovation in

manufacturing, engineering and industry," said Danyll Jones Lockhart, director of youth and family engagement at Great Lakes Science Center.

"STEM leaders like Mike and Bobby have spent their time, creativity and professional experience to bring their highly technical world to the hungry minds of youth here at GLSC. They have taken the skills learned in the SPARK fellowship program and applied them to ignite an excitement in the children's eyes as well as help to transform parents' understanding of what manufacturing is in the 21st century in Northeast Ohio."



SPARK fellow Mike Frangiamore teaches Great Lakes Science Center guests about the science of strength as a child attempts to break an egg in her hand