جامعة تكساس إي أند أم في قطر

TEXAS A&M UNIVERSITY at QATAR

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QAPCO-Texas A&M at Qatar partnership brings science to life and into local schools

The halls of Qatar Academy were filled with sounds of excitement and learning as science and engineering concepts were brought to life during an engaging new show presented by Texas A&M University at Qatar and the Qatar Petrochemical Company (QAPCO).

The Science and Engineering Road Show was developed by STEM (science, technology, engineering and math) experts at Texas A&M at Qatar and generously supported by QAPCO. The road show even comes with its own recognizable van you may soon see driving around Doha, one that aims to bring STEM enrichment to students across Qatar.

The show is part of Texas A&M at Qatar's ongoing efforts to attract Qatar's best and brightest young minds to choose career paths in STEM and support the goals set out in the Qatar National Vision 2030. The road show is tailored to all student age groups, said Texas A&M at Qatar's Benjamin Cieslinski, who performs the demonstrations and experiments in English with Arabic-language support from Joelle Fadlallah. During the show, Cieslinski and Fadlallah demonstrate science and engineering concepts and talk to students about how those principles can be seen in real life.

"Introducing kids to STEM concepts shows them that they're surrounded by science and engineering," Cieslinski said. "We want students to know that science and engineering can be fun and exciting and creative, and we want them to ask questions and to be inquisitive and hopefully want to find their own answers to challenges by pursuing careers in STEM."

Show modules are based on themes, such as temperature, pressure, fluid flow, electromagnetism and chemical structure. For instance, Cieslinski said, every kid has seen a football that "bends" as it moves because it has been kicked with spin. This is an example of Bernoulli's principle about fast-moving fluids that states that as air moves around an object (in this case, the soccer ball), the air creates different pressures on that object that can change the direction the object moves in. In the road show, Cieslinski demonstrates

Bernoulli's principle by blowing "smoke" rings with a vortex cannon and watching how the rings move through the air.

In another experiment, a column of air from a hair dryer keeps a ping pong ball trapped and floating in a column of air to demonstrate the Coanda effect, which has applications in aircraft and fluid dynamics. In the module about temperature, Cieslinski shows how liquid nitrogen — at a temperature of -196°C — will boil just by the ambient heat in the room. Another module talks about the changing states of matter: how solids can change to liquids, then change again into gases. Then the students are introduced to dry ice, or frozen carbon dioxide. Dry ice behaves differently by sublimation, or changing states from a solid directly to a gas. Cieslinski and Fadlallah show the unique properties of dry ice by trapping gasified dry ice, creating a cloud in a bubble.

Qatar Academy's Joanna Mathison, the Assistant Principal at the Primary School said, "Having our students engaged in a science and engineering show like this will help develop their curiosity and excitement for science. It will encourage our students to wonder about the world around them and marvel at the 'magic' of science."

Before debuting the show at Qatar Academy, Texas A&M at Qatar brought the show to QAPCO headquarters and performed for executives and the company's safety team.

Dr. Mohammed Yousef Al Mulla, QAPCO's MD & CEO stated "This program will be of great benefit to school children as it will promote the STEM disciplines within schools, and is closely linked to QAPCO's commitment to increase awareness of STEM disciplines in the Education sector within Qatar. I thank Dr. Malave for inviting us to collaborate on this exciting new initiative as I believe that this program will help to motivate students to understand more about science subjects and will also inspire them to see science as fun and encourage them to learn more about careers in engineering."

"This is also a great example of how the Education sector and Industry can work together on a program that, will I am sure, achieve so much over the next 2 years"

Texas A&M at Qatar dean César O. Malavé said, "The Science and Engineering Road Show is another milestone in Qatar's STEM development. With this initiative, we will connect with dozens of schools around the country and inspire thousands of schoolchildren every year. We are grateful to QAPCO, our visionary partners, for recognizing the significance of nurturing and developing interest in the fields of science, technology, engineering and mathematics in Qatar's young students."