

Physics

At Work

Sushma Sharma

High School Physics Teacher Chicago, IL

Sushma Sharma's love for physics and teaching began at an early age. Growing up in New Delhi, India, she attended public schools and entered many science fairs. Her high school physics teacher first sparked her interest in physics, and her first teaching experience was as a tutor to her fellow students and neighbors. She earned her undergraduate and master's degrees in physics at Delhi University, and upon moving to the United States, she earned a degree in education. "Teaching and learning are my lifelong passions," said Sushma.

After 26 years in the field, she is still learning new things every day. "The most exciting parts of the job for me are the 'eureka' moments when students realize that the concepts they are learning work in their everyday experiences," she said. Currently, Sushma is an instructional science coach with Northwestern University and provides support and training in the *Active Physics* curriculum to Chicago Public School teachers. The feedback so far has been very encouraging.

Sushma likes teaching *Thrills and Chills*, because her students love roller coasters. Her students especially enjoyed seeing the physics principles at work during their trip to a local amusement park. "They loved the *Chapter Challenge*, which has them design a roller coaster," said Sushma.

Sushma thinks that *Active Physics* is one of the best ways to teach physics to students. "They have an opportunity to really understand how physics principles work in day-to-day life and not just as abstract concepts. This curriculum allows students from all backgrounds and all levels of ability to learn and enjoy physics," she said.



Dr. David Wright

Physics Professor and Educational Consultant to Busch Gardens Amusement Park; Virginia Beach, VA

Dr. David Wright teaches introductory physics and astronomy at Tidewater

Community College, and he does a lot to try to engage his students. "The most fun thing is playing with my physics toys and seeing my students get excited about how things work," he said.

When he is not teaching, Dr. Wright is at Busch Gardens Amusement Park performing for students at his theme park laboratory. "My objective is to help them see how physics relates to thrill rides." In one of his demonstrations, he rides a skateboard, powered by a fire extinguisher, to help illustrate Newton's laws.

Stacey Smilek

Pharmacy Manager and American Coaster Enthusiasts member; Pocono's, PA



Stacey Smilek grew up in New Jersey, only 20 minutes away from Six Flag Great Adventure. A pharmacist by day, she gets her kicks as a member of the American Coaster Enthusiasts (ACE) club, along with over 8,000 devoted roller-coaster fans, who travel throughout the United States and other countries to experience the thrills of riding roller coasters.

"What I love about roller coasters is the airtime, or negative g's that you experience. If I could build a roller coaster, I would want as much airtime as possible," said Smilek.

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Active Physics

You might want to ask students how Sushma's experience speaks to them.

Have students read Sushma's profile and discuss your own experience teaching *Thrills and Chills* and ask students how the inquiry-based learning approach has helped them in understanding abstract concepts of physics.

Dr. David Wright's profile shows how he used his expertise in physics to carve out a career for himself that he enjoys. Wright likes to get his students excited about learning how things work. Physics, through his experiences, is fun and he enjoys teaching physics. Students learn through Dr. Wright's profile that Newton's laws can also be demonstrated by riding a skateboard. You might want to ask your students how their *Investigates* in *Thrills and Chills* showed them that physics is best learned by applying abstract concepts to real-life situations.

Stacey Smilek is a pharmacist who is a member of the American Coaster Enthusiasts (ACE) club and loves to travel throughout the United States to amusement parks. She is an example of a person enjoying roller coasters and eagerly wanting to know more about the physics behind them. Consider using Stacey Smilek's profile to ask students how their favorite amusement-park rides would become even more interesting if they could explain the physics behind them. Have students write a brief description of an amusement-park ride other than a roller coaster that entertains them and ask them to include an explanation of the physics involved in that ride.

Physics At Work

The profiles presented here show that all three professionals have a deep appreciation of physics. They are all scientists who like to explore the thrills of a roller-coaster ride. Sushma Sharma and Dr. David Wright are both physicists while Stacey Smilek is a pharmacist, yet she loves roller coasters and enjoys the physics behind them.

Sushma Sharma's career illustrates how a high school teacher sparked her interest in physics and she went on to earn graduate degrees in physics and education. Sushma's statement about teaching and learning are a poignant reminder of how a student's interest in an academic career can become a lifelong passion. There are quite a few heartfelt experiences in Sushma's life that can serve as an inspiration to students of science.