

ST. URSULA ACADEMY SCIENCE TEACHER SELECTED FOR TWO-MONTH SCIENTIFIC OCEAN DRILLING EXPEDITION



In July 2010, an international team of scientists will set sail on the scientific drilling vessel JOIDES Resolution for an eight-week Integrated Ocean Drilling Program (IODP) expedition to the Juan de Fuca Ridge. **Mrs. Jackie Kane**, who teaches Physics, Honors Physics and Geoscience at St. Ursula Academy (SUA), will be a crew member on this expedition. She was chosen from an international pool of applicants to be a part of the ship's education team.

The JOIDES Resolution, will leave from Victoria, British Columbia, Canada, and head 200 miles into the ocean to the Juan de Fuca Ridge where the crew will conduct integrated ocean drilling experiments. They will be completing the installation of a series of subsea floor observatories to allow scientists to investigate the hydrogeology of oceanic crust.

While on this all-expense paid, two-month expedition, Mrs. Kane will be webcasting her experience and getting SUA students involved virtually. Kane will also have pre- and post-expedition commitments, including appearances at science conferences.

The St. Ursula Academy science teacher has been teaching for twenty-four years, eleven of them at SUA. Kane looks for ways to bring real science to her high school students. She wants her students to do hands-on science and experience how scientists work, think and approach problems. Mrs. Kane is very effective at finding these opportunities.

Mrs. Kane has brought science to life for her students by having them enter scientific and engineering competitions. This month, St. Ursula's Science Club, moderated by Mrs. Kane, was one of only four high-school groups from across the United States chosen by NASA to send a four-person delegation to the Glenn Research Center near Cleveland to conduct an experiment that the Science Club members developed themselves, following space-agency guidelines.

Last year, St. Ursula Academy's Junior Engineering Technical Society (JETS), also under Mrs. Kane's lead, entered and was selected as a finalist in the 2009 National Engineering Design Challenge. The students created a working prototype of a file system for use by persons with disabilities. The SUA team was one of only five in the United States to reach the finals. The JETS/AbilityOne National Engineering Design Challenge (NEDC) is an annual engineering design competition challenging students in grades 9-12 to design and build an assistive technology device to help a person with severe disabilities succeed in his or her workplace.

On campus in 2008, thanks to a \$10,000 BP+ Energy for Educators Grant (wind energy), Kane's students in her 11th and 12th grade Geosciences classes conducted an in-depth study of wind energy as a viable resource for Northwest Ohio and considered the many variables and alternatives that must be evaluated when introducing wind energy as a legitimate, competing energy source for the local area and the world: scientifically, socially, environmentally, economically, and politically. They investigated how wind turbines use mechanical and electrical principles to produce an electric current. They built classroom models of wind turbines and used them in experiments to test for optimal variable characteristics such as how vane dimensions and number affect electric current production. As a result of their work they constructed a hybrid solar-cell, wind turbine-powered lamppost outside of their classroom that feeds data into the classroom to be monitored and analyzed.

Mrs. Kane earned a BS (Geology) and an MA Ed from Baldwin Wallace College, and an MAT (Physics Education) from Bowling Green State University. She has permanent comprehensive science teacher certification and has 40 semester hours of post-graduate science studies from the University of Toledo. Her numerous awards include: University of Toledo Sigma Xi Outstanding High School Teacher Award, 2003; John L. Vossen Memorial Award from AVS Science and Technology Society, Fall, 2004; Nanotechnology research UT 2006; BP A+ for Education Grant, 2007, (investigate wind energy). She recently co-authored an article accepted for publication in *The Physics Teacher* and co-presented at the American Association of Physics Teachers National Meeting.

