

**Students:  
Creativity and learning  
go together!**

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## Creative Engineering

It takes a special teacher to make learning exciting, especially when the classes are Advanced Placement Physics and Honors Physical Science. In Mrs. Melanie Jurgovan's classroom at Braden River High School (BRHS), students enrolled in the Engineering, Design, and Leadership Academy are combining creativity with concrete learning—and having fun while they're at it.

"I encourage my students to be creative and resourceful by providing them with many broad opportunities to think out of the box and solve problems," Melanie said. "By supporting curiosity, they are learning the critical thinking skills needed to apply what they have learned in their future endeavors. When you integrate rigor, relevance, and relationships into the curriculum, students are constantly challenged to truly learn the concepts needed to be successful in their careers and adult lives."

At the end of a recent unit about waves and sound, students completed an assignment of their choice. Options included building a musical instrument or creating a book, age-appropriate for a sixth grader, with both narrative and graphics. Senior Daniela Villarreal and her partner Jason Fosbenner chose the book project. Their colorful book, titled *Wave Hello*, covered topics such as wave frequency, amplitude, and the Doppler effect in a way that younger students could understand.

"Physics is so cool," Daniela said. "I like how we do different projects that teach us about physics in a fun and interesting way. We had very few guidelines for writing the book so we got to be really creative. There was a lot of collaboration and brainstorming with one another."

Daniela continued, "Science and math are my strengths and I am still exploring which engineering pathway is right for me. My goal is to be the first in my family to graduate from a four year college and continue my education. Mrs. Jurgovan is my role model."

Another strategy Melanie employs to encourage career exploration involves going beyond the four walls of the classroom. For example, Engineering, Design, and Leadership Academy teachers and students attended the University of South Florida Engineering EXPO 2010. This event targeted middle and high school students and showcased corporations, government bodies, and individual projects, products, and activities that engineers work on today. Students also explored the USF campus to see firsthand the college experience. Earlier in the year students enjoyed a field trip to the Asolo Repertory Theatre where they saw *The Life of Galileo*, a dramatic interpretation of the famous scientist's passion to unearth truth through science.

Melanie Jurgovan combines creative learning with solid academics—in and out of the classroom—and inspires students to learn, dream, and achieve.



Braden River High School students Jason Fosbenner and Daniela Villarreal showcasing their *Wave Hello* book assignment.



Melanie Jurgovan surrounded by physics projects in her classroom.

## JOBS



**Electrical Engineering Technicians**  
Salary: \$34,800 – \$59,100  
Workplace: Manufacturing, construction  
Hours: daytime



**Mechanical Engineers**  
Salary: \$54,600 – \$85,400  
Workplace: Power plants, production facilities  
Hours: flexible



**Operations Research Analysts**  
Salary: \$39,700 – \$63,000  
Workplace: Defense contractors, corporations  
Hours: daytime



Technology Student Association (TSA) members gain top job skills and integrate science, technology, engineering and mathematics concepts through hands-on activities and competitive events.

### PARENT CORNER

- ✓ Discussion starter— as the new school year begins, remind your students that grades really do matter, especially for college-bound students. Ask them how long they want to remain living in their parent's house, and relate that to the fact that earning a living wage is directly related to education. Thus, the higher the grades, the sooner they can move on to independence.
- ✓ During tough economic times, careers that remain relatively strong include those in technology and healthcare. Is your child interested in these areas? Help guide them in the right direction by taking career education classes while still in high school.
- ✓ "Education is really important. No one can take it away from you." Braden River High School 2010 graduate Daniela Villarreal. For further information about smaller learning communities at BRHS, contact Academic Advisor Kelli Kennedy at 941-751-8230, ext. 2283.

### FCAT reading comprehension QUESTION

★ What was the title and subject of the book written by the students in the article?

Answer: "Wave Hello" which covered physics topics such as wave frequency, amplitude, and the Doppler effect.

### What's on the WEB?

[www.physicsclassroom.com](http://www.physicsclassroom.com)  
<http://phet.colorado.edu>  
[www.bradenriver.org/jrotc](http://www.bradenriver.org/jrotc)



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