



A better grasp on Algebra 2

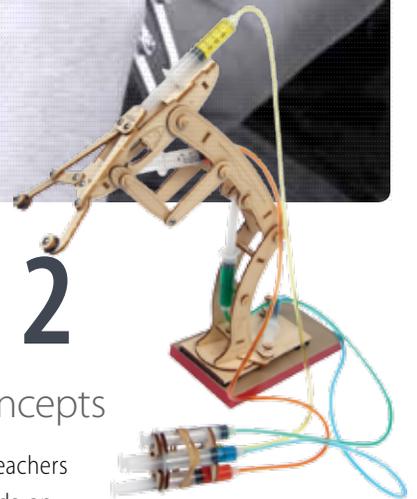
T-Bot® II Hydraulic Arm enables students to experience difficult concepts

Polynomials. Volume formulas. Factoring. Surface area. . . . Bring back memories from your high school Algebra 2 class? If so, they're probably not among your favorite recollections. But for students in Beatrice Villarreal's classroom at Somerset (TX) High School, those stress-inducing terms might indeed harken positive memories.

That's because Villarreal's students learned how the Algebra 2 concepts apply to a real-world object – the T-Bot® II Hydraulic Arm from PitSCO Education that they assembled and used during several class periods.

Like other math and science teachers at SHS, Villarreal is employing hands-on, project-based learning activities to improve students' understanding of previously perplexing concepts.

"Because we're getting ready to do higher-level polynomials, which is factoring and cubes, and since T-Bot shows volume and pressure, I thought it would be a good tie-in," Villarreal said. "And then there's the Cartesian coordinate system."





The T-Bot II illustrates hydraulic power and mechanics when students use a series of syringes and tubes filled with water to operate four axes on a robotic arm. Pride permeates faces of team members who maneuver the hydraulic arm they built to successfully lift and relocate objects.

Sophomore Enrique Ayala excitedly explained that the hands-on activity helped him and his classmates better understand surface area difference in the context of simple hydraulics. “You actually calculate the pounds per square inch, how you’d be able to use the quadratic formula to figure out the surface area of the syringes from the inside,” he said.

Such responses from her students leave Villarreal happy that she overcame her reservations toward this new way of teaching and learning in a core math classroom after doing things the old-fashioned way for nearly 30 years.

“I’ve always been more of a traditional teacher, and this got me out of my comfort zone,” she said. “But this generation of kids, if you do not make that application, they’re doing it just because I’m assigning it. So now they’re making the connection. . . . They have something to tie it back to.”

Next year, T-Bot II will not be the only hands-on activity to make an appearance in Villarreal’s Algebra 2 classes. Now convinced of this effective new way to teach, she will use other activities such as Pitsco’s parachute kit to better engage students and thereby more effectively reach and teach them. **P**



Students in Beatrice Villarreal’s Algebra 2 classroom at Somerset (TX) High School build and operate a T-Bot II to learn more about hydraulic power and mechanics. Photo credits: Somerset ISD.