

One Teacher's Journey with the Evolution of LEGO® MINDSTORMS® Education — RCX, NXT, EV3

Cardigan's new Engineering Possibilities Innovation Creativity (EPIC) Center creates a perfect space for LEGO MINDSTORMS Education.

About the Teacher:

- **Teacher:** David Auerbach, Science Department Chair, Designer/Founder of EPIC, NXT-G Certified Instructor
- **School:** Cardigan Mountain School, Cardigan, NH
- **Grades:** 6-9, boys
- **Using LEGO® solutions for five years**
- **LEGO Education classroom solutions:** LEGO MINDSTORMS® Education RCX, NXT, and EV3

For a school where 10% of the applicants indicate robotics as one of their key interests, having a robotics club is essential. Cardigan Mountain School has been using LEGO® solutions in their robotics club for decades, but just recently David Auerbach helped design and create the EPIC Center, a place at the school where students can research, brainstorm, tinker, create, and build with LEGO bricks and more. "I believe that engineers are engineered in middle school," says Auerbach.

"To compete with [reality TV, cell phones, and social media] and at the same time instill a sense of wonder in students provides one of the greatest challenges for educators today," explains Auerbach. "LEGO Education products inspire creativity, and the by-product is an increase in motivation and self-actualization."

Currently, Auerbach's robotics club uses three versions of LEGO MINDSTORMS® Education: six RCX, six NXT, and now six EV3 sets. "My school has been using LEGO Education products for a long time. It is important to stay ahead of the curve so that our program and equipment remain fresh and up to date to pique the interest of prospective students," says Auerbach. "Over the years, we have found that each successive generation of LEGO MINDSTORMS has become more versatile with improvements in both software and hardware. The evolution of the platform has brought excellent changes."

The change at the school with the addition of the new EPIC Center is providing kids with even more hands-on opportunities. "I laid out the space and designed a special LEGO brick table to address storage needs and the growing interest in STEM-related areas," explains Auerbach. "The movable table has 10 document drawers perfect for organizing thousands of LEGO bricks. Manuals and notebooks are stored on adjustable shelves. In addition, there is storage space for FLL® (FIRST® LEGO League) mats and roll-out drawers to separate and store the elements from each year of the FLL program."

With a new building space and a new evolution of LEGO MINDSTORMS Education, now the students at Cardigan Mountain School are often heard asking why robotics club is so short. "We are currently trying to expand our robotics program into the classroom," states Auerbach. "Our hopes for the robotics program at my school include continued improvements in scheduling and bringing robotics to the forefront by offering it as a stand-alone subject in our science program."

Auerbach's colleagues from other schools have successfully integrated LEGO Education products into their work, power, and energy units for physical science, and Auerbach plans to do the same. "LEGO MINDSTORMS brings out the best characteristics of effective middle-grade education. It immerses students in age-appropriate learning environments that stimulate their sense of pride and accomplishment," explains Auerbach. "LEGO helps me maintain a high level of interest in the sciences because any child can find success at a level commensurate with their abilities."



education