

# Developing Young Engineers

Kenosha Unified School District's PLTW pilot program engages young students in STEM

**SESSION:** *Launching K-5 Learners into STEM* | **Presenters:** Angela Andersson, principal; Tim Carlson, teacher; Arielle Hodges, teacher; Jenny McCall; technology education support; Kenosha Unified School District

Students decide early whether they like, or think they are good at, math and science. Therefore, it is critical to reach students at a young age to enable them to have positive experiences and success in the STEM subject areas.

The Kenosha School of Technology Enhanced Curriculum (KTEC) was developed to foster an interest of these subjects in young students. KTEC is a charter PreK-8 school with a mission “to prepare students for success in a global society through academic excellence by the use of 21st Century skills and technology integration.”

KTEC opened its doors in 2007 as a STEM school and selects students from a random lottery. Due to long waiting lists, the school recently opened a second campus and expects to soon educate 1,200 students between the two schools.

In June 2013, KTEC was selected as one of 44 schools nationwide to pilot the Project Lead The Way (PLTW) Launch program for K-5 students.

PLTW Launch includes 24 topic-based, 10-hour modules created to engage students in design problems, collaboration, analysis, problem solving, and computational thinking. Arielle Hodges, Kenosha Unified teacher and a PLTW master teacher, explained that the Launch projects “take the students through the engineering design process.”

All modules are set up with an activity-, project-, and problem-based approach. While working in the third-grade Science of Flight module, students design a glider with the best wing design to travel the farthest and carry cargo (binder clips!). Students must ask: (1) How does the structure affect the function? and (2) Who has the best structure?

“PLTW is doing a wonderful job of teaching children to answer the questions that all of us have,” said Jenny McCall, technology education support for PLTW.

The KTEC staff explained that students learn that they do not fail.

“We learn more from what doesn't work, than from what does,” McCall said.

The KTEC staff relayed a story from a parent about her five-year-old who announced, “We've had an engineering failure.” The mother asked, “What are we going to do?” The PLTW Launch student responded, “We'll redesign.” Failure is not an option!

The PLTW program is part of the school's science curriculum and is aligned to Next Generation Science Standards (NGSS) and the Common Core State Standards. The Kenosha science curriculum used to be content heavy but recently the district



adopted the NGSS, which emphasize that science is interconnected with content, practices, and crosscutting.

The KTEC staff said that using the PLTW program is not expensive. One staff member attends PLTW training to become a lead teacher and then goes back to school to lead implementation for that school. KTEC assigns four students per kit and uses an iPad Cart to minimize costs. Furthermore, the cost of the module kits is reasonable and the ongoing cost of resupplying consumables is very low.

The staff at KTEC have seen first-hand the positive results from using the PLTW STEM program with K-5 students.

“The biggest piece is student engagement,” Hodges said. “They are so engaged in this curriculum.”

As Angela Andersson, principal of KTEC, says, “attendance is never a problem for us.” ■