

STEM, STEAM, AND THE SKILLS IN BETWEEN

REAL SCHOOL STORIES OF GRIT, GROWTH, AND INNOVATION





EXPEDITIONS' HANDS-ON APPROACH LETS MIDDLE SCHOOLERS WORK LIKE INDUSTRY PROFESSIONALS

What started as a solution to boost test scores changed the way an entire school's community engaged with STEM and career learning



Madison-Ridgeland Academy



Madison, MS



Expeditions



110 students

"We've seen such an improvement in our science testing scores. At the high school, they've brought on so many new, hands-on science classes because the middle schoolers graduated and wanted more."

– KANDICE ROWE,

Middle school science department chair at Madison-Ridgeland Academy



CAREER & TECHNICAL EDUCATION

IF THEY CAN SEE IT, THEY CAN DO IT

Pitsco's Expeditions program is a student-led, collaborative STEM experience where learners explore real-world concepts through hands-on activities tied to science, engineering, and career pathways. Built around inquiry and problem-solving, each Expedition gives students the chance to engage in meaningful work that reflects what professionals do in fields such as robotics, health science, environmental engineering, and more.

In Kandice Rowe's seventh grade college prep and honors STEM classes, high test scores went from being a wishlist outcome to the new normal for her courses. That's because Expeditions isn't focused on answers, but curiosity, and allows students to grasp science and career concepts with their minds and hands.

One of Kandice's students' favorite lessons, *Electric Tech*, requires them to apply principles of science such as Ohm's law, voltage, current, and resistance to wire a circuit – just like someone working in electronics, engineering, or the skilled trades might do in their profession.

"A lot of the time, kids learn by messing up," Kandice says. "They have to critically think to work through the problem and recognize why specific connections were mistakes."

There's an added challenge – or asset – for these students, depending on their perspective: the hands-on engineering activities are collaborative.

Everyone gets paired up, and sometimes, like in the workplace, kids are paired with people who don't work like they do. With a limited amount of resources, the group members take time to design a plan and then discuss the design's strengths and flaws to see where it can be improved before they attempt the real thing.

In the process, students start to recognize that the skills they're developing – planning, problem-solving, communication, and adaptability – mirror the expectations of real careers in STEM fields and beyond.

Kandice's classroom is focused but never quiet; it's filled with anticipation, shouted instructions, and celebratory high-fives. When the kids collaborate effectively, each team member is empowered, even if the lesson began with some confusion.

"I watch the kids become peer teachers. They become confident in what they know, and it's great seeing them explain it to others."

The room's culture is judgement free, emphasizing exploration and experimentation for the sake of learning and enjoyment. Even students who were known to struggle with science embraced the lessons in Expeditions.

"A lot of the time, kids learn by messing up," Kandice says. "They have to critically think to work through the problem and recognize why specific connections were mistakes."

One even went home with the idea that he wanted to be an electrician – proof that exposure to authentic experiences can help students discover what they're good at and imagine where it might take them.

"Now, we can't go back to regular lessons," Kandice says. "They're used to immersion and being the STEM leaders themselves, so I've altered my other lessons to align with the way they learn best."

That shift in mindset – and the results it has produced – hasn't gone unnoticed.

With achievement high and interest even higher, the middle schoolers' success is catalyzing changes across Madison-Ridgeland Academy. Its high school is even adding new hands-on STEM courses, inspired by Expeditions, to keep up with student growth and enthusiasm.

One of those new offerings, a biomedical course, is designed to make students feel like doctors in an operating room. They learn anatomy and physiology by interacting with a mock patient and practice performing diagnostic tests the way they would in an actual medical environment – blurring the line between classroom and career.

When students reimagine their capabilities, they reimagine their futures. With Expeditions, every classroom can be the place where it starts. 