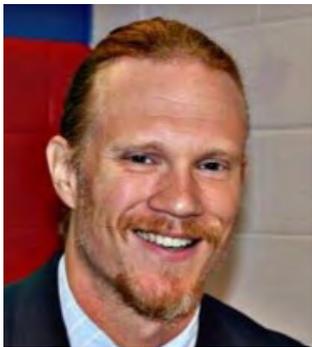




CREATING THE COUNTRY'S FIRST PK-14 STEAM CAMPUS

Students at Maury County schools in Tennessee collaborate across grade levels on focused studies, propelling them to true career paths.



"Innovation starts on the fringes."

Dr. Ryan Jackson
Principal, Mt. Pleasant HS
Maury County, TN

A little more than a mile from Mt. Pleasant High School sits the Mt. Pleasant/Maury County Phosphate Museum, a two-story stone building with a red awning and a green sign that simply reads, "Museum."

For more than 100 years, the 11-square-mile town of Mt. Pleasant in Tennessee boomed behind the large quantities of phosphate in the surrounding area. Ten mining companies operated there, producing 25,000 tons of the mineral each year. The town grew along with it. In short order, Mt. Pleasant became affectionately known as the "Phosphate Capital of the World."

Those days have long since passed. The last phosphate plant closed in 1992. Since then the town's nearly 5,000 citizens have looked elsewhere for work, some making the 45-minute drive to Nashville, while others commute to nearby Columbia and Franklin.

"We are on the fringes," said **Dr. Ryan Jackson**, principal of Mt. Pleasant High School. "But as many have said, innovation starts on the fringes."

A New Vision for Teaching

Educators in Maury County knew they needed to revitalize learning in their schools. They started to think outside the box.

To help reshape their schools, Maury County's education leaders took an innovative approach.

Starting in 2015, they began using a model that blends project-based learning (PBL) and STEM education with the arts. The final result was STEAM, a science-based approach that also interweaves the humanities.

Mt. Pleasant's schools have emerged as a focal point for the PBL model being implemented districtwide. It was a natural fit. A quality arts education had long been a pillar of Mt. Pleasant Middle School. Students at the school can pursue visual arts, music, performing arts, and dance at a dedicated arts wing, contributed in 2000 by the local nonprofit, Kids on Stage Foundation.



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Dr. Chris Marczak
Superintendent,
Maury County Public Schools, TN

“With its present Kids on Stage funded middle school arts program, and then the addition of PBL K-12, the natural progression in Mt. Pleasant was to marry the two,” said Maury County Superintendent **Dr. Chris Marczak**.

It was at this point in 2016 that the county brought Jackson on board — a leader who breaks the mold of the traditional principal. The 38-year-old father of two sports long hair and a goatee. He wears bright-colored clothes and finds quick comfort with the people he speaks with. He’s given a TED Talk.

Instead of a TV principal, he evokes the vibe of a technology entrepreneur, mixing a casual demeanor with a passion for his projects.

It’s his fresh approach that has helped fuel Mt. Pleasant’s new structure.

Marczak said it was Jackson’s larger vision for an integrated campus, emphasizing both the arts and PBL/STEM, that served as the launching off point to propel their new concept.

“We wanted the kids to start thinking like creators,” Jackson said.

Launching the Arts Innovation Zone

The first step in revitalizing the schools was forming a PK-14 STEAM campus dubbed the Mt. Pleasant Arts Innovation Zone. This wasn’t a new building, but a new era of collaboration between the local schools.

The town’s elementary, middle, and high school buildings were a stone’s throw from each other, with a community center in the middle. With Kids on Stage’s backing, and Jackson’s leadership, that proximity became synergized, with teams of students working together across the three schools.

Older students working on a project could share what they learned with younger students, who in turn could complete projects that corresponded with their skill set. The end result was a districtwide achievement that everyone could take pride in.

There was also the hope that a tighter student community would jumpstart interest in science and technology pursuits as they grew up.

Aiding the shift in curriculum, a partnership with **Discovery Education** gave Mt. Pleasant’s educators access to professional development resources, mentors, and a lineup of software, including Science Techbook and Streaming Plus. Marczak said Discovery Education came to them with an organized approach that expedited the STEAM integration in their schools.

“In education, the clock is always ticking. Waiting impedes opportunities for students to be exposed to something that might change their educational trajectory for the better,” said Marczak. “Discovery Education, with their professional development model and world-class content, has been a critical partner to this work.”

Without Discovery Education, we would have had to search, piecemeal, and try to tie everything together ourselves.”

“Discovery Education has been the battery in our back,” said Jackson.

A New Teaching Style for New Skills

Armin Begtrup, Mt. Pleasant High School’s STEM director, said most young students enjoy science and math, but that passion tends to fade around middle school.

Some students fear that people who like math and science are “nerds,”



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buying into pre-conceived social stereotypes about the types of students who pursue those subjects.

“We understand not everyone will like science and math, but we wanted the students that shied away from the subjects to do so because they honestly did not like it and just had other passions,” Begtrup said.

To fuel those passions, they needed to step away from the traditional classroom structure. Instead of reciting facts given during a lecture, students were given projects to work on as a team.

Begtrup said his role as a teacher was much more of a guide who could answer and ask questions, along with provide direction.

“The students come into class and just start working,” Begtrup said. “I’m there if they need me.”

In 2017, Begtrup’s students created an escape room, where a group become trapped and must solve a series of puzzles in order to “escape.” Escape rooms tend to be immersive environments, so creating and then running one snowballed into a coordinated, schoolwide effort.

“We found an abandoned room in the school, cleaned it out and started building,” Begtrup said. “We engaged with the arts program to write the stories and create the sets, our engineering students built the puzzles, and business students ran and maintained the project. It involved everyone.”

These types of projects require students to expand their skill set,

learning everything from advanced robotics and coding to engineering and design. They encourage students to learn on their feet, as they work toward creating a finished product.

Expanding Classroom Borders

Perhaps the biggest step, though, has been bringing in outside partners to improve the educational experience.

The tip of this spear has been Mt. Pleasant’s ongoing partnership with Smelter Aluminum, a locally-based industry which has been a catalyst for the unprecedented partnership model helping both the school and the community thrive.

In 2017, Mt. Pleasant partnered with the Tennessee College of Applied Technology, which offered additional classes at the school. The partnership created a K-14 ecosystem, enabling students to learn real-world skills that can directly translate to the workforce.

Mt. Pleasant also partners with Parker Hannifin, a publicly traded company that creates motion and control technologies. Parker gives projects to the school’s students, who are able to learn while receiving professional mentorship.

The high school’s mechatronics program entered a contest held by the carmaker Lexus aimed at improving the environment. The students at Mt. Pleasant targeted the Zika virus, and decided to use drones to collect samples from marshy, stagnant bodies of water to test for the virus. By using



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STEM Director
Mt. Pleasant High School

drones, they ensured that the biodiversity in the area would not be disrupted.

That plan led to a successful \$5,000 grant from the French multinational pharmaceutical company Sanofi to build a prototype amphibious drone to pursue the project.

Mt. Pleasant students are also working with NASA to build hardware. They design and prototype a wide range of tools and technology used by the organization on the International Space Station. Students will create kits for the crew’s personal items, among other hands-on projects like redesigning the pantry.

“Our kids will be able to put NASA on their resume,” Begtrup said. “That is awesome.”

‘We Won’t Stop’

Jackson said he was recently attending an event honoring the top 30 digital educators in the country, where he was one of the recipients. He had a conversation with a school leader from Los Angeles who wanted to scale Mt. Pleasant’s model for STEAM in their district.

That kind of growth excites him, primarily because he sees how the kids in the town – and, in turn, their parents – have come to see the school as a beacon of innovation.

“Mt. Pleasant is not a big town,” Jackson said. “We are an hour from Nashville — a solid drive from anywhere else. But we’ve shown if you think different, speak different, act different, then you’ll see success grow.”

Discovery Education STEM Connect is an interdisciplinary K-8 resource that enhances core curriculum. It guides students to develop and apply knowledge and skills to build real possibilities for their future.

Explore more at DiscoveryEducation.com/STEMConnect

