

Where Learning Takes Off

Brillion Public Schools' new Exploration Station expands the boundaries of STEAM learning

Shelby Anderson

It's bright, open, colorful and fun. It's Brillion Elementary School's new "Exploration Station" — a place where students engage in STEAM learning.

In the Exploration Station, the boundaries between science, technology, art, and math are broken down as students collaborate to build, design, plan, and present projects and ideas. Critical thinking and creativity are fostered. Large

windows let in plenty of natural light. Bright colors make the space lively. In one corner, a space shuttle is built into the wall. A large mural depicts the periodic table of elements along with pioneers in various scientific fields.

"It facilitates our students' ability to engage in STEAM learning," said superintendent Dominick Madison. "It's getting exposure to STEAM career options to our youngest

students."

"I've seen kids who typically aren't excited about learning come in here and become very excited," said Carrie Deiter, Brillion Elementary School principal. "It's hands-on learning versus sitting and getting. Students are much more engaged."

The Exploration Station is the result of a focused effort in the Brillion Public Schools to bring STEAM learning to all grades. It wouldn't

◀ Students work together to build a circuit in Brillion's Exploration Station.

Ideas and concepts are introduced to students in the "Wonder Room."

have happened without the support of its community and some major business partners supporting their local public schools.

■ STEAM in Brillion

For the past decade, Brillion Public Schools has offered students opportunities to engage in high-level STEAM learning. In 2007, Brillion High School opened a new technology education wing outfitted with manufacturing equipment including electronics and robotic equipment, laser engravers and a materials processing lab. While that facility has helped generate excitement for STEAM learning at the high school, school leaders and educators in the district wanted to make it a focus in all grade levels.

Steve Meyer, the district's STEM coordinator as well as a technology and engineering teacher, said the district started small with simple STEAM exercises and lessons with elementary grade levels, including kindergarten.

"When we started, we thought maybe kindergarten is too young but actually we found out it's the opposite," Meyer said. "This is the perfect time to have them learn about STEAM education, to mix disciplines together and to solve problems."

"When young people come into school, they're extremely creative," he added. "When you put problems out there, they come up with ideas that you never thought of."

However, the district quickly ran



into a problem. The traditional elementary school classrooms weren't the ideal spaces to engage students in hands-on, collaborative STEAM activities.

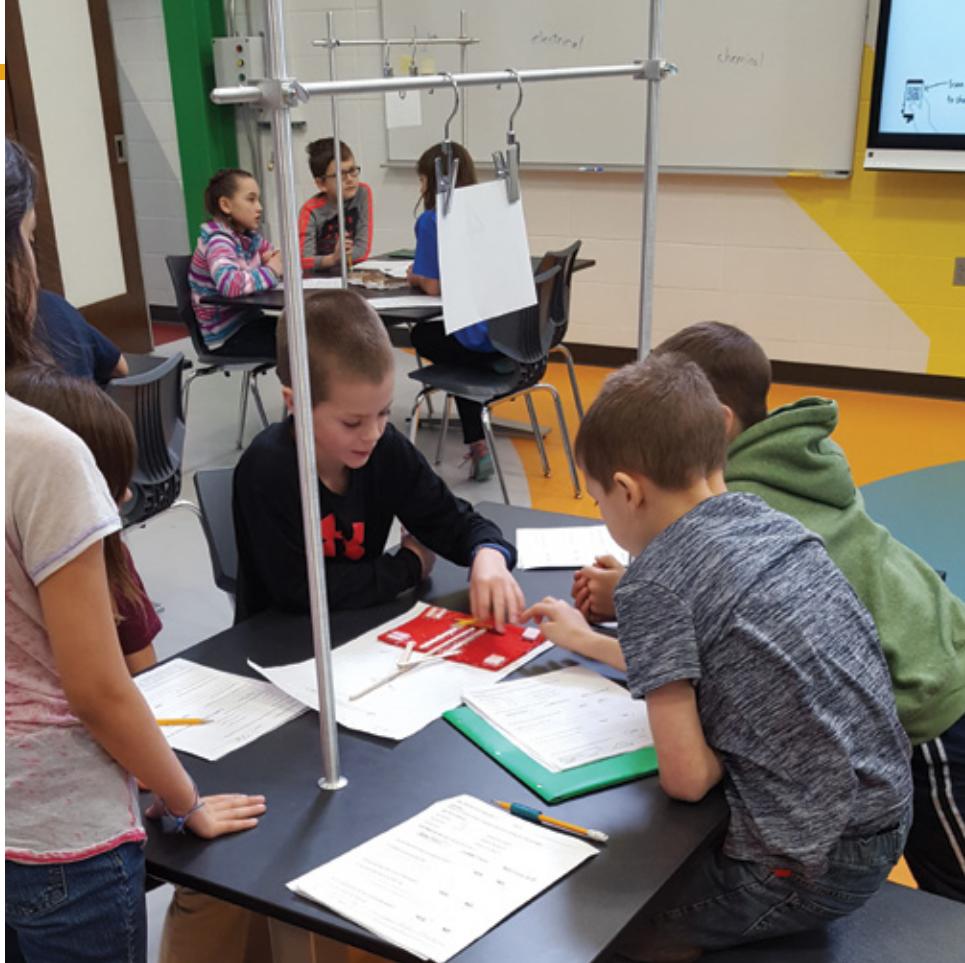
"We were finding that trying to do that in the regular classroom as it is stereotypically designed is very difficult," Meyer said.

Transforming an Old Cafeteria

At one end of the Brillion Elementary School sat an old gymnasium/cafeteria that was no longer being used regularly. Meyer and others in the district saw potential in the space. It is about the size of three classrooms and two stories tall. The idea to convert the space into a STEAM learning lab quickly took shape.

"This all started with our STEM teacher, Steve Meyer, challenging the district administrator, and school board to build an Elementary STEAM Center for our younger students," said Steve Klessig, a member of the Brillion School Board. "It was a space we weren't using anyway. We brought lots of creative people into the process."

The district launched a fundraising campaign and created a website that included conceptual drawings of a



STEAM learning lab. In the end, about 80 percent of the cost of the \$1.5 million renovation project came from private fundraising and the remaining funds were covered from a

▲ The hands-on projects promote collaboration among students.

2014 referendum. Remarkably, the Ariens Foundation and Endries Family Foundation each donated \$400,000 to the project.

In January, the learning lab, officially called the "Brillion Exploration Station" opened to students.

On the ground floor, the Exploration Station has three spaces — the Wonder Room, the Discovery Lab, and the Idea Lab. Students start in the Wonder Room where direct instruction takes place. As a team, teachers introduce a topic or concept. On a recent visit, first-grade students were being introduced to the water cycle.

In the Idea Lab, students begin to think more deeply about a project or concept and begin to imagine and plan. In the Discovery Lab, students create, test and improve their projects. Once a project is complete, students

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can meet back up in the Wonder Room and present their work.

According to the Brillion Public Schools Exploration Station campaign website, each space was deliberately created with the students and their exploration in mind. Opportunities for hands-on/minds-on, project-based learning and best practices for young learners drove the layout and even the furniture selections — which must work for the smallest of kindergarteners to the tallest of elementary school students.

"It also features plenty of natural

▲ Students demonstrate a stage of the water cycle.

light to give it a good and open feeling," said Klessig. "It has lab and lecture facilities in the same space and catwalks for gravity and aeronautical experiments."

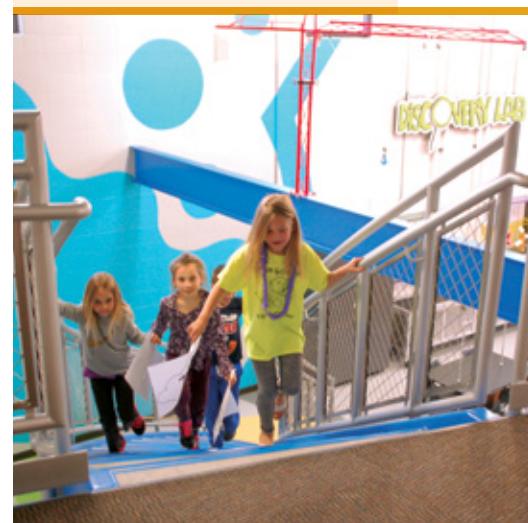
All three of the spaces are open and flexible. The spaces can easily be sectioned off to create individual spaces or opened up for a larger, open space.

"We wanted to create an environment that kids could understand

and get excited about learning. A place where students could discover and create.

We have created a space unlike any other STEAM environment where it engages students' creativity augmenting the learning experience. A destination to explore ideas through an amazing adventure in discovery."

— Brillion Public Schools





▲ Students from 4K-5th grade use the Exploration Station.

"It's hands-on learning versus sitting and getting. Students are much more engaged."

— Carrie Deiter,
Brillion Elementary School Principal

That's just the first floor. A twisting staircase leads students to a series of catwalks. This second floor gives students more space to work but also allows teachers and students to add fun, interactive dimensions to their lessons. During a recent visit when first-grade students were learning about the water cycle, students dropped balloons from the catwalks to represent rain falling from the sky. The simple act of getting students off the floor and walking up the stairs got them excited and energized about the activity.

■ Supporting Critical Thinkers

On one wall, the Exploration Station's engineering process is prominently displayed. It includes the following steps: Ask (what is the problem?); Imagine (What are the solutions?); Plan (draw a diagram, choose materials); Create (build then test); and Improve (make it better). Each project or lesson follows these steps, which are flexible and interchangeable.

For example, in one project,

students were challenged with building a structure that would most effectively capture wind energy. Students worked together to imagine and plan their structures. Then they created them out of wooden dowels and wax paper. The structures were tested and improved until they were most efficient at capturing wind. In some cases, students needed to go back to the imagining or planning phase because their first plan failed. In addition to using hard math skills, this kind of learning involves collab-



▲ The bright, colorful space energizes students and teachers.

oration, creativity, flexibility, and resiliency.

"They're more willing to try things that are challenging because we've set up an environment here, and in our classrooms, where it's okay to fail," said Deiter.

Additionally, all students participate in the Exploration Station. "It's so flexible, we can meet any special

needs of our students and we can give all of our students these learning opportunities," Deiter said.

Next school year, Deiter said they are looking into getting middle school students more involved in the Exploration Station. "It's too good not to share," added Deiter.

School leaders in Brillion also hope to share the Exploration Lab with

other school districts interested in expanding STEAM learning in their district. "We hope we can use this as a model facility and have others visit to show them how we're doing STEAM here in Brillion and how you can really change the culture in your school," Meyer said. ■

Shelby Anderson is editor of Wisconsin School News.



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