



Catholic School Engages Elementary Students through Hands-on STEAM Learning

Lindsay Mosshammer knows that elementary science lessons often follow a rigid, textbook-driven approach, with students passively following predetermined procedures and observing expected outcomes. This “cookbook recipe” teaching style not only stifles creativity, but it can also hinder critical thinking skill development. It also leaves students feeling disconnected from the scientific process, since they’re really just following instructions rather than actively exploring and discovering.

As a science teacher for grades 1-3 at The Frances Xavier Warde School (FXW) in Chicago, Mosshammer wanted to create a completely different science lab experience for her young students. After the team at FXW looked around at the options on the edtech market, they discovered TinkRworks, a STEAM education platform that helps educators like Mosshammer deliver engaging, hands-on learning experiences to students.

Mosshammer started with a TinkRworks pilot for second grade students and then expanded that pilot to include first graders. Second graders did the Pampered Plant project, which is a STEAM-based activity where young learners create a customizable plant monitoring system. The younger students used Smart Lamp, which found them combining electronics, programming, and design to create a customizable lamp.



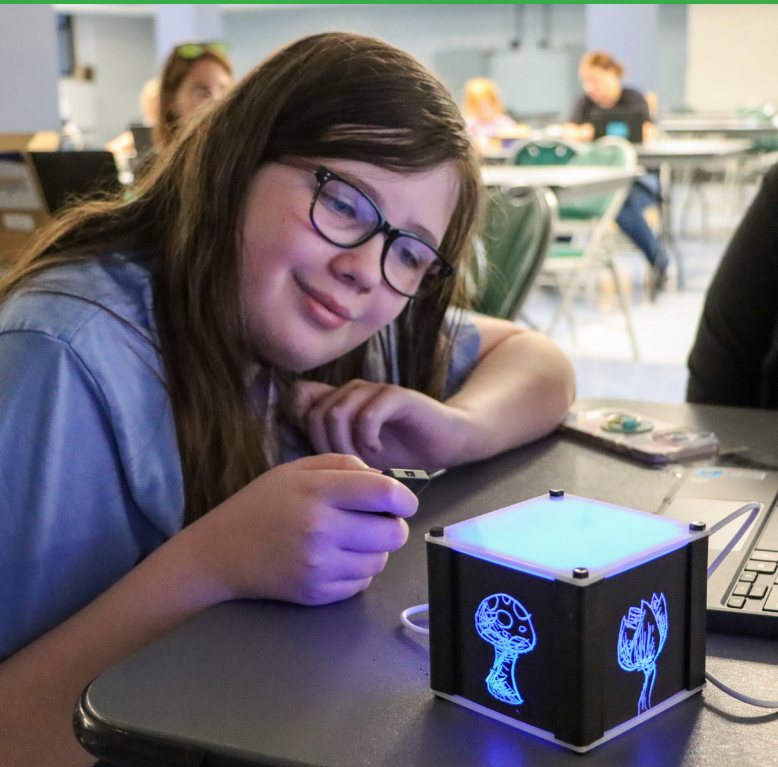
The Frances Xavier Warde School



- Located in Chicago, Illinois
- Private/independent Catholic school
- 825 students
- Pre-K-8th grade

Key Takeaways

- Private Catholic school wanted a platform that would engage elementary-aged students and move beyond the typical textbook-based science labs.
- TinkRworks’ standards-aligned STEAM education platform helps educators deliver engaging, hands-on learning experience to students.
- Students are now more engaged and collaborative, and they’re testing the waters through exploration and discovery of future careers that don’t even exist yet.



Engaging Young Minds

Today, all FXW students in grades 1-3 use TinkRworks. With Pampered Plants, for example, they created colors and symbols for the LEDs and coded symbols to indicate whether their plants were too wet or too dry. “They had to find the parameters for those conditions and test out various scenarios,” says Mosshammer. “It was a lot of fun for them; they were really excited about it.”

Through these hands-on exercises, students also develop the motor skills needed to screw plates together, work with electronic components, and manipulate electrical plug and LED lighting. These are all skills they wouldn’t have been able to get in a hands-on way in the traditional classroom, where having 25 students using all of the tools and parts at once would have overwhelmed the teacher.

“Because of the way TinkRworks’ boxes are set up and how the work is shown on PowerPoint, I was just able to direct traffic and let the students do the projects themselves,” says Mosshammer. The online platform also encourages collaboration and cooperation among the students themselves.

“At the age level I teach, pretty much everyone needs my attention at the same time, but I only have two hands,” she explains. “With TinkRworks, the students are more engaged, active and ready to step in to help one another.”

Mosshammer says these and other TinkRworks projects connect very well with the next-generation science standards (NGSS) work that FXW was already doing.

“We have a curriculum in place, so any time you introduce a project like this, you worry about how it will integrate with what you’re already doing,” she points out. “The beautiful thing about TinkRworks is that it integrated almost flawlessly.”

Even better, TinkRworks helped Mosshammer “tear up the recipe book” used by most elementary science lab teachers and develop a more dynamic, engaging and even surprising experience for her young students. And while the curriculum was structured in a logical manner, it includes engaging design elements and leaves plenty of room for students to ask questions, solve problems and troubleshoot.

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First graders use the platform twice a week while the other students use it four times a week. The program is designed to be flexible and allows Mosshammer to “pick and pull” as much as

she wants to use. “You could probably do the build in a single day if you allotted the entire day for it,” she points

out. “TinkRworks could be its own curriculum because it really does hit a lot of the benchmarks that we want it to hit.”

Mosshammer also likes the all-in-one nature of the platform, which includes everything you need for a project: the group work activities, the labs, supplies for teachers and students, and the reinforcement labs. “There was very little that I had to get outside of the TinkRworks curriculum,” she adds. “It’s all-encompassing.”

Embracing Future Career Opportunities

As a private Catholic school that emphasizes math and science instruction, FXW has found a way to integrate more STEAM learning into its curriculum while also giving all students in grades 1-3 a peek into their future education and/or career. Using TinkRworks, the school is also breaking down barriers and making complex topics more “relatable” for kids.

“They get ‘why’ we’re doing the project from day one; they don’t have to guess or just be relegated

to following the recipe cards in science lab,” says Mosshammer, who loves to see students light up as soon as the TinkRworks boxes are pulled off the shelf and set out on a desk.

The fact that the students need little, or no direction makes the experience that much more satisfying and engaging for the youngsters.

“It’s very self-paced, so a lot of it is just getting your supplies, figuring out where you left off in your programming, and getting going,” says Mosshammer, who adds that students are also now more willing to give things a try, even if it means they’ll have to retrace their steps or tackle the project from a different angle. “That’s huge for them.”

Finally, students can also explore an entire new realm of professions, some of which may not even exist yet. “If they have the skill sets necessary to problem solve, communicate, improvise and try, they’ll be able to do anything,” she adds. “It doesn’t matter what the career asks of them, they’ll be able to handle it.”