

Pathway to the Future

Transforming the Classroom Experience at Graded

CHALLENGE

Graded was searching for a way to prepare students to be future-ready

SOLUTION

PLTW offered Graded an established, hands-on, engaging curriculum

IMPLEMENTATION

Flexibility helps Graded bring PLTW to life across all grade bands

RESULTS

Graded community testifies to the PLTW difference





Challenge

GRADED WAS SEARCHING FOR A WAY TO PREPARE STUDENTS TO BE FUTURE-READY

Students entering the education system today will be young adults by the year 2030. Many of the current technologies, jobs, and even professions will drastically change by the time these young people enter higher education or the workforce. As a result, PreK-12 education systems around the world must adapt to ensure students are gaining the knowledge, skills, and experiences necessary to thrive, no matter what their futures hold.

At Graded, The American School of São Paulo, this meant searching for a flexible, hands-on program that could shift the way its students learned—transforming traditional, teacher-led classrooms into collaborative spaces where students solve problems, think creatively, and apply their learning in real-world contexts. However, the international school had to take into account several factors when choosing a program that would meet its long-term needs:

**DIVERSE AND MOBILE
STUDENT POPULATION**

**EXISTING ACADEMIC
PROGRAMS**

**NEW DEVELOPMENTS
ON CAMPUS**

Graded has been serving an international community of learners for nearly 100 years. Today, approximately 1,260 students representing 37 nationalities attend Graded's lower school, middle school, and high school. With its blend of languages and cultures, Graded sought a program that could meet the needs of its varied student population through scaffolded, project-based learning experiences—and one that offered a complete pathway with entry points at every grade level.

"In any international school, you may have [students] for one to two years. You may have them a lot longer. But you have to give them an experience that is as deep—if not deeper and quicker in the time that you have them as what they would receive in the United States," says Dr. Shauna Hobbs, director of—analytics, innovation, and research at Graded. "You're transitioning kids all the time, so you have to have a curriculum that is flexible enough that you can bring students in during those transition blocks."

As with any school adopting new curriculum, Graded also had to consider its existing academic programs—including the International Baccalaureate (IB) program in the high school—and how new, engaging curriculum would complement them, while providing the support teachers needed.

Simultaneously with its search for a new program, Graded was renovating several spaces on its campus and building new ones, including an Innovation Center for the upper school—grades 6-12—which was completed in February 2019.

This new Innovation Center was designed to house the type of hands-on learning experiences the school sought, which would bring science, technology, engineering, and math (STEM) to the forefront in a new, engaging way. Additionally, Graded is planning development of two new Innovation Hubs for the lower school—part of the school's holistic strategy to transition to this new hands-on learning approach and transform the classroom experience.

"We were building this really innovative space that could flex over time as the needs of the kids change, and we knew we would need a curriculum [to go along with it]," Hobbs says. "Our students didn't have a full sequence of STEM opportunities."



About Graded

**GRADED, THE AMERICAN SCHOOL
OF SÃO PAULO**

LOCATION: São Paulo, Brazil

SCHOOL TYPE: Private American
international school

GRADE SPAN: K3-12

STUDENT ENROLLMENT: 1,260 students



Solution

PLTW OFFERED GRADED THE HANDS-ON, ENGAGING CURRICULUM IT NEEDED Graded's leadership recognized the need to prepare its students for the future, and when Ewan McIntosh—avid proponent of problem-based learning and founder of global education consultancy firm NoTosh—spoke at the school's Innovate 2015 Conference, a light bulb turned on.

The school began searching for a new program that would lay the foundation for a STEM pathway and help students develop knowledge and skills identified to be key to their success in 2030 and beyond.¹

The leadership team saw Project Lead The Way as an established program that would allow Graded to begin offering robotics curriculum in the middle school and then eventually expand to the lower school and high school. Additionally, PLTW's activity-, project-, problem-based (APB) instructional approach—core to its PreK-12 pathways in computer science, engineering, and biomedical science—provided the engaging, hands-on curriculum Graded sought, with the flexibility and pathways that would offer a sustainable solution for the entire school.

The APB approach helps students become active and engaged learners by creating student-centered learning experiences in which teachers act as facilitators, rather than lecturers. In this environment, students begin to lead their own discovery as they work through hands-on activities, projects, and problems that empower them to think deeply, apply their learning, and overcome challenges.



Throughout the process, students develop both technical and in-demand skills that are transportable across all industries. These skills—including the ability to solve problems, think critically and creatively, collaborate, communicate, and demonstrate ethical reasoning – are proven to be the most demanded and valued in the job market and are core to a worker's success now and in the future.²

"What I like is that it's creating better thinkers and problem solvers," says Lower School Principal Vance Boisjoli. "Students can't just sit and be quiet and do their own thing, because they're going to have to present and verbalize what they do. This also helps our English-language learners express themselves more through language."

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We wanted something that was hands-on; we wanted students to be more engaged in project-based learning. I didn't want a cookie-cutter experience.

ROBERTO D'ERIZANS
Graded Middle School Principal



Implementation

FLEXIBILITY HELPED GRADED BRING PLTW TO LIFE ACROSS ALL GRADE BANDS

With a range of program implementation options and course offerings, Graded has been able to bring the PLTW experience to life in a way that best meets the needs and interests of its students and teachers.

The middle school staff was ready for the kind of change PLTW would bring, so with their support and after identifying the right teachers to receive training, Graded began implementing PLTW Gateway, Project Lead The Way's middle school program, in the 2016-17 school year.

"For us, the key has been flexibility," Roberto d'Erizans, Graded Middle School Principal, says. "We wanted as much flexibility as possible, because we want to be able to be responsive to future needs."

Recognizing that robotics is a "conduit for getting students interested in computer science and engineering" and aligning with the school's interest in focusing on these pathways, d'Erizans chose to start with three PLTW Gateway units: Automation and Robotics, App Creators, and Design and Modeling.

During the first year of implementation, the school offered all three units as electives for its seventh and eighth grade students. The following year, Graded offered the Design and Modeling unit to sixth graders as a quarter-long prerequisite for App Creators and Automation and Robotics, and beginning next year, Graded will offer the

Design and Modeling unit as a semester-long course requirement for all sixth graders.



Flexibility has been important not only in the options available for implementation, but also in the ways in which Graded can adapt the problems or context in the curriculum to better relate to its student population and address students' varied backgrounds and cultural perspectives.

For example, in Design and Modeling, PLTW Gateway teacher

Kevin Hudson has added an instant challenge in which students draw from three decks of cards—each separate deck representing the client, constraint, and criteria. The resulting challenge might be: Design something for ancient Egyptians that keeps the sun off their heads and is green.

"We have students from all over the world, so the ability for me to bring in other examples and add to the curriculum is great," says Hudson, who received PLTW Professional Development in summer 2016 and has been teaching PLTW Gateway at Graded since its first year of implementation.

Graded plans to soon expand its PLTW Gateway offerings with the Computer Science for Innovators and Makers and Flight and Space units to accommodate student interest and demand. But the program's expansion isn't stopping at the middle school.

Implementation at a Glance

2015

Graded begins STEM pathway exploration



2016

PLTW Gateway implemented in Graded middle school.



2019

Upper school Innovation Center is completed. (February)

Graded begins offering first PLTW Launch module to fifth graders. (February)

Construction begins on two new lower school Innovation Hubs. (Summer)

Graded begins offering PLTW Computer Science and PLTW Engineering to students in grades 9-10. (Fall)

SUPPORT FOR PLTW LEADS TO PROGRAM EXPANSION It became clear early on that PLTW was the right choice for Graded's students and teachers, and that it could provide hands-on learning opportunities for students in every grade to develop the skills they'll need to thrive. As a result, Graded is expanding PLTW to its lower school and high school to give all students access to the PLTW experience.

"We have to have opportunities within all grade bands for students to experience the curriculum if we really are committed to an innovative education," Hobbs says. "Even if they're at Graded for two years, we have to be able to get students up to speed on those skills and what they're going to need to succeed."

In February 2019, Graded implemented the elementary program, PLTW Launch, and began offering the Infection Detection module to its fifth grade students. Boisjoli says the goal is to offer one PLTW Launch module in each grade level (K-5) beginning next school year—aligning the implementation of PLTW Launch with the school's shift from American Education Reaches Out (AERO) standards to Next Generation Science Standards (NGSS). Each module will be integrated within the classrooms as part of the school day.



Patricia Gehrels, who received her PLTW Launch Classroom Teacher credential just three weeks before she began teaching the module, says she can already see the value in offering this program to the school's youngest students.

"We talk about the brain as being a muscle and that you develop certain muscles in your brain, and I think when kids are taught early in life to ask questions or to think outside the box or create ideas and then go back and revise their ideas and communicate with each other, you're creating these brain paths that otherwise wouldn't be there," she says.

With the expansion of PLTW Launch, Graded is also planning to begin development in summer 2019 of two Innovation Hubs, which will house the lower school's PLTW classes and other STEM programs and coursework. Like the Innovation Center at the upper school, these hubs will be designed to stimulate creativity and encourage collaboration among students.

"It'll be a different learning environment—we'll have different levels in the space that are very flexible and open, where kids can come in, sit on the floor or stand up, and build and create," Boisjoli says. "I'm really excited about them having the opportunity to be a little bit more free and more creative in their work."



Teacher Spotlight

PATRICIA GEHRELS

Is the only teacher who has received PLTW Launch training thus far. Boisjoli plans to get all his elementary teachers trained to facilitate this curriculum in the near future.

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It's important to start young and have kids thinking about the engineering and design process.

PATRICIA GEHRELS
PLTW Launch Teacher

At the high school level, Graded is getting ready to implement PLTW Computer Science and PLTW Engineering in grades 9-10. Hobbs says she expects “quite a bit” of interest in the PLTW courses—Computer Science Principles and Introduction to Engineering Design—given the excitement and demand generated from PLTW Gateway and the recently completed Innovation Center, which will house the high school PLTW courses.

To align the PLTW coursework with its IB program, Graded is offering Computer Science Principles and Introduction to Engineering Design as semester-long (instead of full-year) courses. This flexibility allows students in grades 11-12 to participate in the IB program, including the IB Computer Science course, which Graded added to its 2019-20 offerings to further strengthen this pathway for students.

For Boisjoli, offering a full pathway of hands-on STEM opportunities, like that which is being implemented at Graded, comes down to what’s best for students.



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We have to do what is best for student learning. We owe it to our students.

VANCE BOISJOLI
Graded Lower School Principal



Results

GRADED COMMUNITY TESTIFIES TO THE PLTW DIFFERENCE Four years ago, Graded sought a hands-on, STEM-based program that could evolve with its campus and community, while providing students with opportunities to develop the knowledge, skills, and experiences necessary to thrive in 2030 and beyond. Today, with the implementation of PLTW, Graded is providing students a pathway to their future—and enthusiasm and support for the program continues to grow.

“Engagement has increased and almost all of our [middle school] students have now taken a PLTW class,” d’Erizans says. “If you walk past our PLTW classrooms during lunchtime, kids are in there working. They’re spending their recess keeping at it. Enrollment in our extracurricular [STEM] programs has also increased, and parents speak positively about the courses.”

PLTW hasn’t just transformed the classroom experience for students; it has also transformed the experience for teachers, who are shifting the way they think and teach, and have learned through PLTW Professional Development how to act as facilitators and coaches in the classroom.

Kevin Hudson has been a teacher for 14 years and has taught various subjects in Saudi Arabia, the Cayman Islands, Canada, and Japan. While he has been exposed to some project-based learning in the past, he had never taught PLTW.

“It was a shift in my thinking. I’m not the center of attention now; the project is. I’m just there to try to help the students. Now, three years later, I don’t want to go back to the other way [of teaching],” he says. “My students are always engaged. They’re helping each other out, wandering around the class looking for parts for their projects, and coming up with these brilliant ideas that I’ve never thought of before.”



PLTW Gateway is, indeed, making Graded’s students better thinkers and problem-solvers—important skills for every student to gain, but especially for those at international schools, Boisjoli says.

“This type of learning through Project Lead The Way is modeling that you have to adjust what you do and try different ways of solving a problem, and I think that’s a great skill for students—especially ours—to learn,” he says. “They’re going to move from country to country. They have to learn how to adapt. If we’re teaching them how to learn and adjust, this can be really transferable to their own lives—even more so than for American students.”

With Graded’s implementation of these new, transformative learning experiences, the future is bright and full of possibilities for the school’s approximately 1,260 students. PLTW’s engaging curriculum, flexible implementation, and pathway approach have not only helped Graded achieve its goal of finding a new way to prepare students for the future, but have also helped the school fulfill its own mission: Inspire. Challenge. Succeed.

“This is a great opportunity for us to inspire kids and for them to feel empowered—to feel like they can succeed. But PLTW also addresses that ‘challenge’ piece. It’s not going to be easy and I don’t want them to give up,” Boisjoli says. “This really demonstrates what we believe is important in education.”

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It was a shift in my thinking. I’m not the center of attention now; the project is. I’m just there to try to help the students.

KEVIN HUDSON
PLTW Gateway Teacher

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To learn more about how Project Lead The Way came to life at Grade, reach out to:

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About Project Lead The Way

Project Lead The Way (PLTW) is a nonprofit organization that provides a transformative learning experience for PreK-12 students and teachers across the U.S. PLTW empowers students to develop in-demand, transportable knowledge and skills through pathways in computer science, engineering, and biomedical science. PLTW's teacher training and resources support teachers as they engage their students in real-world learning. To learn more, **visit pltw.org**.

About Graded

Founded in 1920, Graded strives to inspire, challenge, and ensure the success of each and every child. Graded focuses efforts on three comprehensive themes: Be Successful, Be Happy, and Be Involved. With a focus on personalized learning and a balanced and positive school climate in which all students engage in activities, athletics, arts, and service, Graded strives to empower students to reach their potential and positively impact the world.

- 1 The Future of Education and Skills. OECD, 2018, <http://bit.ly/TheFutureOfEducationAndSkills>
- 2 The Power of Transportable Skills: Assessing the Demand and Value of the Skills of the Future. Project Lead The Way and Burning Glass Technologies, 2019, www2.pltw.org/TransportableSkillsReport.