AP LAZER
LEADING THE WAY

Innovation in Action

Real Stories of Student Engagement, Innovative Design, and Future-focused Learning in Action

CASE STUDY

All Saints Episcopal School

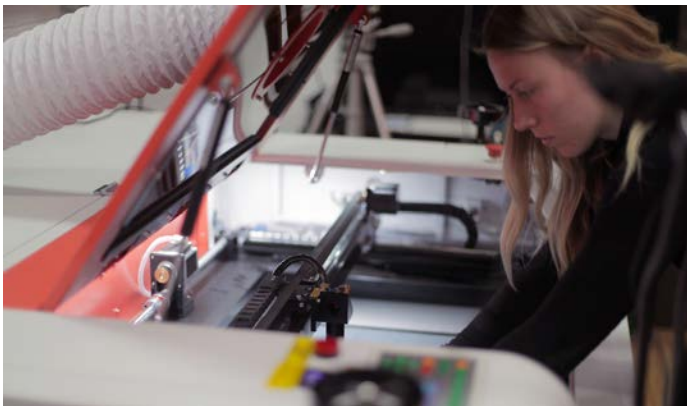
All Saints is an independent PK3–12 school known for academic excellence, a nurturing Christian environment, and a commitment to innovation. As a school of inquiry and impact, All Saints focuses on helping students discover their gifts—and learn to use them in meaningful, real-world ways.

EXECUTIVE SUMMARY

All Saints Episcopal School in Tyler, Texas set out to bring more real-world, hands-on learning into its curriculum. By introducing an AP Lazer system into its Center for Innovation, the school unlocked powerful opportunities for STEAM learning, design thinking, cross-curricular collaboration, and student-led creativity. What began as a search for "authentic learning" tools quickly evolved into a transformative program that elevates student engagement, strengthens community connections, and saves the school thousands of dollars annually.

Transforming Learning Through Laser Innovation

> **"The authentic learning that has been sparked and the money saved on various branding projects has been tremendous."**
>
> **Mike Cobb** | Former Head of School



CHALLENGE

The school wanted to:

- Introduce cutting-edge technology that offered more than passive observation
- Give students hands-on access to industry-relevant tools
- Create stronger connections between academic learning and real-world application
- Support STEAM initiatives with equipment that was fast, reliable, and highly versatile
- Reduce outsourced costs for school branding, signage, and promotional items

THE SOLUTION: AP LAZER

After seeing AP Lazer featured on Performance TV, Head of School Mike Cobb was struck by its unique open-architecture design. The school selected the SN3024 system for its size, power, and flexibility, allowing students to cut and engrave materials of nearly any size or weight.

Why the AP Lazer Stood Out:

- Open-architecture design removes size and weight limitations
- Ability to cut, engrave, prototype, and fabricate using many materials
- Faster production than 3D printing, supporting whole-class projects
- Ideal for both entry-level and advanced STEAM applications
- Safe for student use with built-in safety switches and controls

> "Our AP Lazer is the most used tool in our inventory. It's versatile, approachable, and provides rapid results."

Joel Gordon | AK Regional Innovation Hub

IMPLEMENTATION

The laser quickly became the centerpiece of the school's fabrication lab. Students complete safety training through AP Lazer videos and school-created tutorials before "badging out" to operate the machine independently. With an Innovation Specialist onsite daily, students have the support and supervision needed to explore the machine's full capabilities.

IMPACT ON LEARNING

The AP Lazer has reshaped learning across multiple grade levels and subject areas:

Deepened STEAM Integration

History classes prototype artifacts, science classes test materials, and art students design functional products. The laser empowers students to turn concepts into tangible items.

Increased Creativity & Design Thinking

Students now ask, "What can we create?"—and then bring those ideas to life. The tool encourages experimentation, iteration, and problem-solving.

Real-World Skill Building

Students use professional-grade tools and software, building confidence and technical skills that extend far beyond the classroom.

Authentic Community Connections

Parents and visitors regularly remark on the impressive scale and quality of student work, positioning All Saints as a leader in educational innovation.

FUNDING THE PROJECT

All Saints secured funding through a community "Fund-a-Need" gala, raising more than $35,000 in a single evening. The school continues to generate revenue and savings through on-campus engraving projects. Additional funding strategies highlighted include:

- Grants such as the Carl Perkins Technology Grant
- Student-run fundraising initiatives
- Brick campaigns that can independently fund an entire machine

MONEY-SAVING RESULTS

Beyond enhancing learning, the AP Lazer has saved All Saints thousands of dollars annually by allowing the school to:

- Produce branded merchandise in-house
- Engrave personalized senior bricks
- Customize signage, awards, and promotional materials
- Eliminate outsourcing for rugs, plaques, and donor items

According to the school, they have produced "tens of thousands of dollars" worth of merchandise internally, significantly reducing outside vendor costs.

STUDENT SPOTLIGHT

One student created a complete virtual-reality tour of the campus using a 180° camera, then fabricated custom VR headset frames using the AP Lazer. Prospective families got to experience a student-made, interactive tour, showcasing the school's innovative culture.

CONCLUSION

With one investment, All Saints Episcopal School transformed its approach to hands-on learning, empowered students with industry-relevant skills, and built a program that blends creativity, innovation, and real-world problem solving. The AP Lazer continues to drive new ideas across the curriculum—proving that when students have the right tools, their potential is limitless.

CASE STUDY

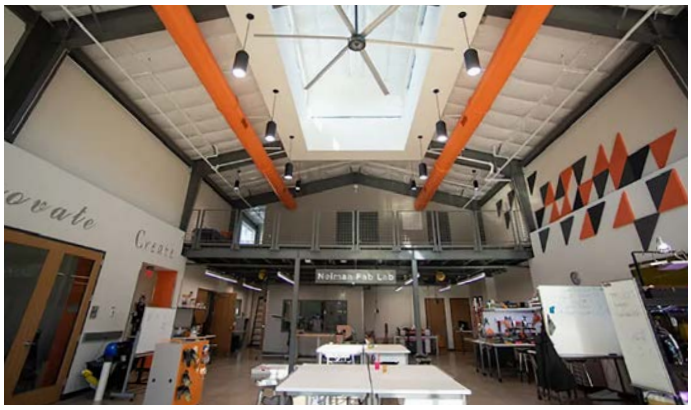
TMI Episcopal

Founded in 1893, TMI Episcopal is the oldest Episcopal college preparatory school in the American Southwest. The school is known for rigorous academics, a long-standing honor system, leadership development, and a thriving JROTC program. TMI is committed to fostering innovation through The Walker Innovation Center—a state-of-the-art hub featuring 3D printers, CNC machines, robotics programs, and AP Lazer technology.

Integrating Laser Technology to Elevate STEAM Education

EXECUTIVE SUMMARY

TMI Episcopal in San Antonio, Texas, integrated AP Lazer technology into its Walker Innovation Center to elevate hands-on learning, strengthen STEAM education, and prepare students for future careers in engineering, robotics, design, and entrepreneurship. The AP Lazer SN2816 has become a cornerstone of the school's Innovation and Design program, transforming the way students learn, create, prototype, and solve real-world problems.



"The enhanced engagement enriches the learning process and positively correlates with improved grades."

Justin Kutscherousky | Former Innovation Design Director

CHALLENGE

TMI Sought to:

- Expand hands-on opportunities in engineering and fabrication
- Strengthen design-thinking and human-centered design instruction
- Support robotics, arts, and science programs with professional-grade fabrication tools
- Offer students industry-relevant technical experience
- Reduce outsourcing costs for campus branding, signage, and school events
- Create meaningful student projects that could be showcased to families, universities, and competitions

THE SOLUTION: AP LAZER

TMI selected the AP Lazer SN2816 after strong endorsement from their Dean of Innovation, who previously implemented AP Lazer technology at another independent school. AP Lazer's unmatched flexibility, especially the removable Z-carriage, made it the ideal system for creating large or complex projects.

Key Advantages:

- Ability to cut and engrave a wide range of materials
- Open architecture for working on oversized or irregular objects
- Easily integrated into multiple subject areas
- Intuitive training support for both teachers and students
- 24/7 customer service and extensive online learning resources

IMPLEMENTATION

The laser was installed within The Walker Innovation Center, allowing students year-round access to fabrication tools. TMI adopted a "badging" certification system to ensure safe and confident operation.

Implementation Highlights:

- Students complete online training modules on safety and best practices
- A 100% quiz score is required before hands-on certification
- Students earn a physical laser-engraved badge they create themselves
- Faculty across departments—World Languages, Athletics, Fine Arts, Robotics, and Science—were trained and encouraged to incorporate laser applications into their curriculum

CLASSROOM INTEGRATION

Laser technology is now embedded across grades 6–12. Students regularly create classroom tools, gifts for teachers, and functional items for campus spaces. Teachers also rely on the laser for cutting durable materials, creating stencils, and developing custom components for their lessons. The laser empowers students to turn concepts into tangible creations.

SUBJECT AREAS UTILIZING AP LAZER

- Innovation & Design
- Robotics (Vex & Lego)
- Fine Arts
- Science (Physics and Chemistry labs)
- Business & Entrepreneurship
- Campus Events and Admissions

STUDENT PROJECT HIGHLIGHTS

Using the AP Lazer, students have created:

- Precision prototypes for engineering and design
- Multi-layer wooden and acrylic art pieces
- Engraved acrylic signs for campus use
- Custom mugs and teacher gifts
- Garden signage and campus décor
- 3D wooden sculptures for art exhibitions and college portfolios
- Engraved acrylic components for competitive robotics teams
- Physics and chemistry demonstrations exploring laser principles

Campus-wide uses include: engraved wine glasses for parent events, custom medallions for fundraisers, keychains for Admissions, and branded merchandise that supports outreach and development.

According to the school, they have produced "tens of thousands of dollars" worth of merchandise internally—significantly reducing outside vendor costs.

IMPACT ON LEARNING

The AP Lazer has elevated the learning environment in measurable ways:

Elevated Engagement

> Students gravitate toward the laser for both classroom and personal projects, sparking creativity, independence, and genuine excitement for hands-on learning.

Real-World Readiness

> Students build skills aligned with engineering, design, and advanced manufacturing—preparing them for internships, competitions, and future careers.

Academic Precision

> The move from basic tools to advanced fabrication has elevated the quality of student work, boosting accuracy, craftsmanship, and overall academic performance.

Showcase-Ready Work

> Projects produced on the laser become stand out pieces for tours and exhibitions, helping TMI highlight innovation through polished, portfolio-worthy student work.

CHALLENGES AND SOLUTIONS

The primary challenge was ensuring faculty adoption. TMI overcame this by:

- Demonstrating the laser's value across departments
- Offering hands-on training
- Empowering teachers to integrate laser-made materials into their own curriculum

This cross-departmental engagement resulted in widespread support and consistent use of the machine.

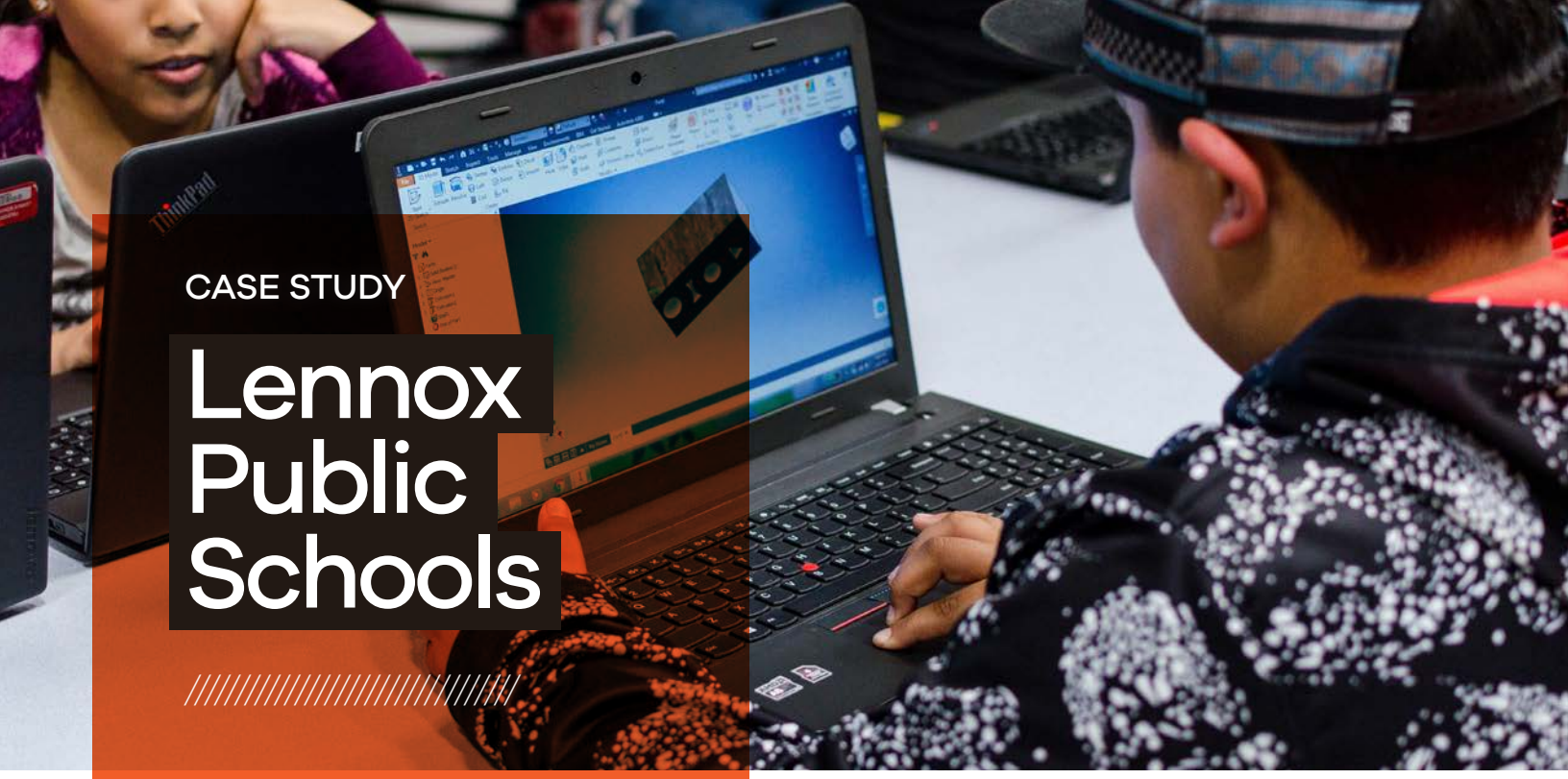
FUTURE PLANS

TMI plans to continue expanding its use of laser technology through:

- Cross-disciplinary collaborations
- Community outreach initiatives
- Advanced fabrication workshops
- Student entrepreneurship opportunities
- Research and engineering projects
- Curriculum expansion around fabrication and product design

CONCLUSION

AP Lazer technology has become a transformative force at TMI. From engineering and robotics to art and entrepreneurship, the AP Lazer SN2816 elevates creativity, deepens student engagement, and enriches academic rigor. It is now an essential tool in preparing students to thrive as innovators, designers, and problem-solvers.



CASE STUDY

Lennox Public Schools

Lennox is a diverse K–12 district in Southern California, where 96% of students qualify for free or reduced-price lunch. Surrounded by major aerospace and technology employers such as SpaceX and Northrop Grumman, the district is deeply committed to providing students with the technical skills needed to compete in today's rapidly changing job market.

Integrating Laser Technology to Elevate STEAM Education

EXECUTIVE SUMMARY

Lennox Public Schools, a low-income district near Los Angeles, set out to elevate student engagement in STEAM by creating hands-on, real-world learning experiences. By integrating an AP Lazer system into its middle school engineering program, Lennox built a powerful pathway that connects academics to industry-relevant skills—preparing students for future careers in engineering, design, and advanced manufacturing.

"We're trying to give students the best possible path to success, and STEAM programs seem key to that."

Alejandro Hernandez | Engineer at Lennox Public Schools

CHALLENGE

Lennox needed a way to:

- Strengthen STEAM education with practical, hands-on experiences
- Show students real-world applications of math, science, and engineering
- Support a new engineering-focused middle school program
- Introduce tools that were more efficient, scalable, and versatile than 3D printers alone
- Build student confidence through project-based learning and problem solving

THE SOLUTION: AP LAZER

To meet these goals, Lennox Public Schools adopted the AP Lazer SN4024 system—chosen for its speed, versatility, and industrial-grade capabilities.

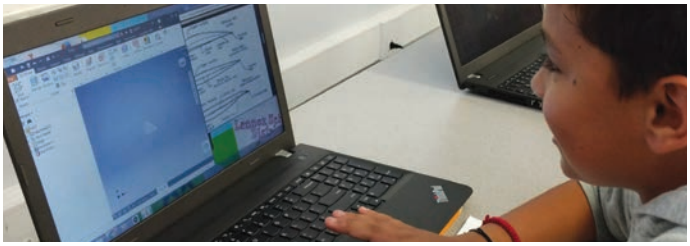
Benefits That Made AP Lazer The Right Choice

- Significantly faster production than 3D printing, enabling whole-class participation
- Ability to cut and engrave a wide range of materials (wood, acrylic, cardboard, marble, and more)
- Supports both 2D engraving projects and advanced 3D fabrication
- Large-format cutting bed ideal for furniture-sized projects
- Built-in safety systems for classroom use, including lid interlocks and software authentication
- Full training support, including onsite setup, virtual lessons, and 24/7 technical assistance

AP Lazer's open-architecture design allows students to think creatively—designing projects far larger than the cutter bed by assembling pieces cut from multiple sheets.

PROGRAM IMPLEMENTATION

Lennox created a school-within-a-school engineering program for grades 6–7 (expanding to grade 8). Students rotate through engineering labs paired with science courses—mirroring the structure of a college-level lecture and lab.



Implementation Highlights

- Teachers trained in project-based learning at the Buck Institute for Education
- AP Lazer provided onsite machine training and an online learning portal
- Students learned 2D workflows first using Inkscape, then transitioned to 3D CAD
- Autodesk Inventor and 3D modeling skills were adapted for laser fabrication
- Students practiced by manipulating existing CAD models before designing original work

IMPACT ON LEARNING

The AP Lazer became a cornerstone of Lennox's hands-on STEAM program. Key learning outcomes:

Deep Understanding of STEAM Concepts

Students directly see how geometry, measurement, physics, and design principles work in the real world.

Full-Class Participation With Fast Output

Laser-cut parts are produced in minutes versus hours or days on a 3D printer, ensuring every student completes their own project.

Enhanced Project-Based Learning

Students design, prototype, test, and refine projects, mirroring real engineering workflows.

Real-World Applications and School Value

The school now engraves awards, plaques, donor gifts, nameplates, and school branding in-house, saving significant money and expanding opportunities for student job skills.

> **"The authentic learning that has been sparked and the money saved on various branding projects has been tremendous."**
>
> **Mike Cobb** | Former Head of School

STUDENT PROJECTS

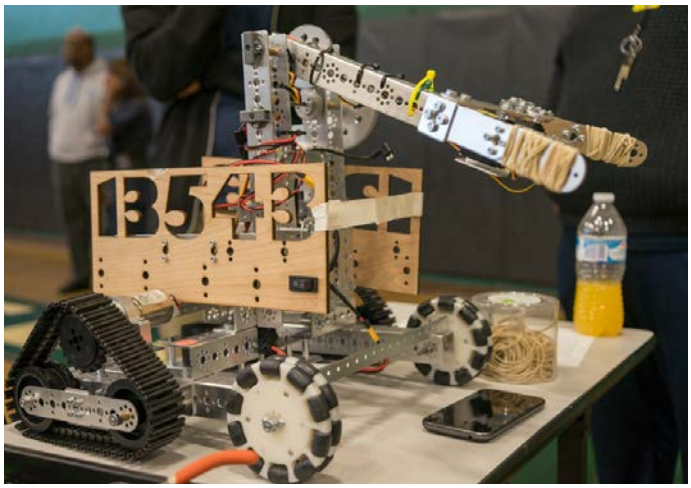
Students engaged in progressively complex projects, such as:

- Laser-engraved award plaques for school events
- Custom-designed supply containers and storage boxes
- Multi-material 3D assemblies using engineered joints
- Full furniture builds prototyped in cardboard, then cut from plywood
- Donor gifts and engraved marble plaques

LASER MACHINE VS. 3D PRINTER

Educators found the laser offered advantages that transformed classroom capabilities:

- Up to 24x faster production than 3D printing
- Larger, more ambitious project possibilities
- Better suited for whole-class project completion
- Engraving capabilities for school branding and fundraising
- Less downtime and higher reliability during active classroom use



CONCLUSION

Lennox Public Schools successfully built a hands-on engineering program that makes STEAM learning exciting, practical, and accessible. By integrating AP Lazer technology, the district:

- Increased student engagement
- Accelerated project-based learning
- Built valuable real-world skills
- Demonstrated how modern fabrication tools can change the trajectory of a student's education

The AP Lazer continues to drive innovation at Lennox, empowering students to become thinkers, creators, and problem-solvers ready for the world ahead.