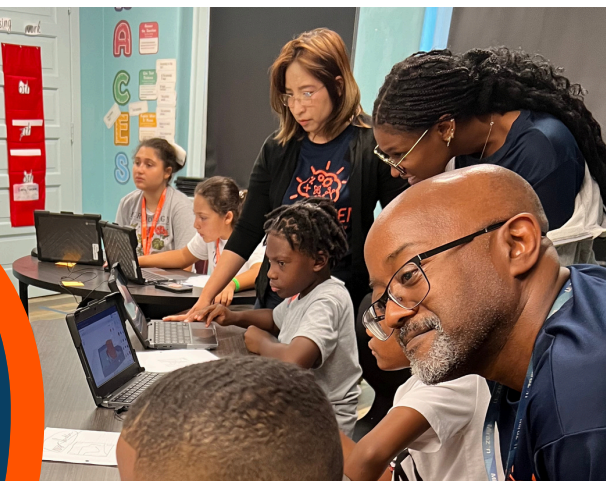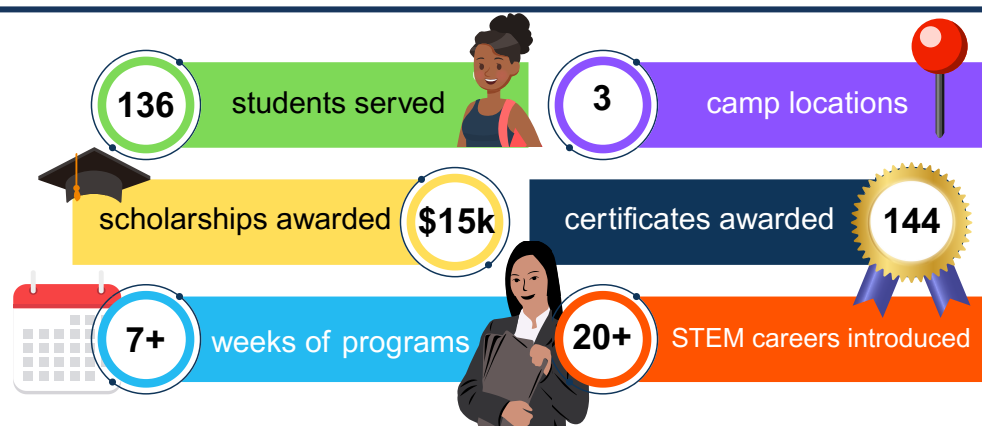# BrainSTEM

SUMMER 2025
IMPACT REPORT
Eliminating Barriers. Expanding Opportunity.

This summer, BrainSTEM University shattered access barriers and expanded its impact across three locations in Louisville, KY—serving **136 students** through cutting-edge, hands-on STEM camps. Thanks to our partners and funders, we provided **38 full scholarships** and brought high-quality STEM education to students from rising 3rd to 9th grade.

Our summer programming focused on cultivating curiosity, building tech fluency, and preparing students for real-world STEM careers—from civil engineering to game development, robotics, and aerospace.

Summer 2025 by the Numbers

- **136** students served
- **3** camp locations
- **$15k** scholarships awarded
- **144** certificates awarded
- **7+** weeks of programs
- **20+** STEM careers introduced

Expanding Our Reach

This summer, we expanded our reach with three camp locations in Downtown and West Louisville.

Nativity Academy at St. Boniface

529 E Liberty St, Louisville, KY

June 23–July 18

Themes: 3D Printing, Game Development & AI, Robots & Drones
Students: 26 (38 scholarships)
Certificates: 12 (3D Printing), 8 (Game Dev), 10 (Robots & Drones)

Students built games in VR, designed with AI, piloted drones, and explored real-world careers in engineering, programming, and design.

Galilee Community Development Corporation

3918 W Broadway, Louisville, KY
Mondays, June 9–July 21
Certificates: 17 (3D Printing), 17 (Robots & Drones)

Themes: 3D print pens, drones, STEM career exploration (forensic scientist, rocket scientist, aerospace engineer, chemist, robotics engineer, drone pilot)
Students: 30
Highlight: Students met a real-life rocket scientist

This camp sparked student imagination with engaging activities and authentic exposure to high-impact careers in science and tech.

Team Kid Summer Camp

1st Gethsemane Center for Family Development
3 Weeks in June & July
Certificates: 30 (3D Printing), 50 (Robotics)

Themes: 3D Printing, Robotics, Coding, Drones
Students: 80

Team Kid students dove into digital creation and hands-on robotics, experiencing the joy and possibility of STEM in action.

3D Printing Camp: Where Creativity Meets Engineering

At BrainSTEM University's 3D Printing Camp, students were immersed in a hands-on environment where art, math, and engineering came together to bring their ideas to life. Using both 3D printers and 3D print pens, students learned Computer-Aided Design (CAD) through TinkerCAD and followed the Engineering Design Process—from brainstorming and prototyping to testing and iterating.

Projects included:

- Designing and printing ball mazes to explore spatial reasoning and iteration
- Creating personalized name keychains, integrating symmetry and geometry
- Crafting wearable art like glasses and jewelry using 3D pens
- Producing school-themed keepsakes and heartfelt gifts, which nurtured self-expression and purpose

Learning Outcomes:

- Mastery of basic CAD skills using TinkerCAD
- Understanding how additive manufacturing works
- Familiarity with the steps of the Engineering Design Process
- Improved spatial awareness, problem-solving, and perseverance
- Boosted self-confidence through tangible creation and presentation

Real-World Connections

Students were introduced to careers such as:

- Additive Manufacturing Specialist
- CAD Designer
- Mechanical or Civil Engineer
- Product Designer

These career paths emphasize how technical precision and creativity coexist in the workforce, reinforcing that students don't need to "fit a mold" to thrive in STEM.

A Blend of Math and Art

3D printing naturally appeals to students with diverse interests and learning styles because it integrates geometry, measurement, and ratios with aesthetic design, storytelling, and visual creativity.

This interdisciplinary approach opens STEM to students who might not initially see themselves in science or technology.

Inclusive for Neurodivergent Learners

Notably, 3D printing camp has shown remarkable benefits for neurodivergent students, including those with ADHD, autism, and other learning differences.

We observed:

- Increased focus and sustained attention during design and printing activities
- Enhanced fine motor skills and hand-eye coordination
- A strong sense of pride and accomplishment from finishing complex, meaningful projects

Because 3D printing provides visual, tactile, and goal-oriented learning, it supports engagement in a way that feels intuitive and calming to many neurodivergent learners. It fosters an environment where creativity is celebrated, mistakes are part of the process, and success is self-defined.
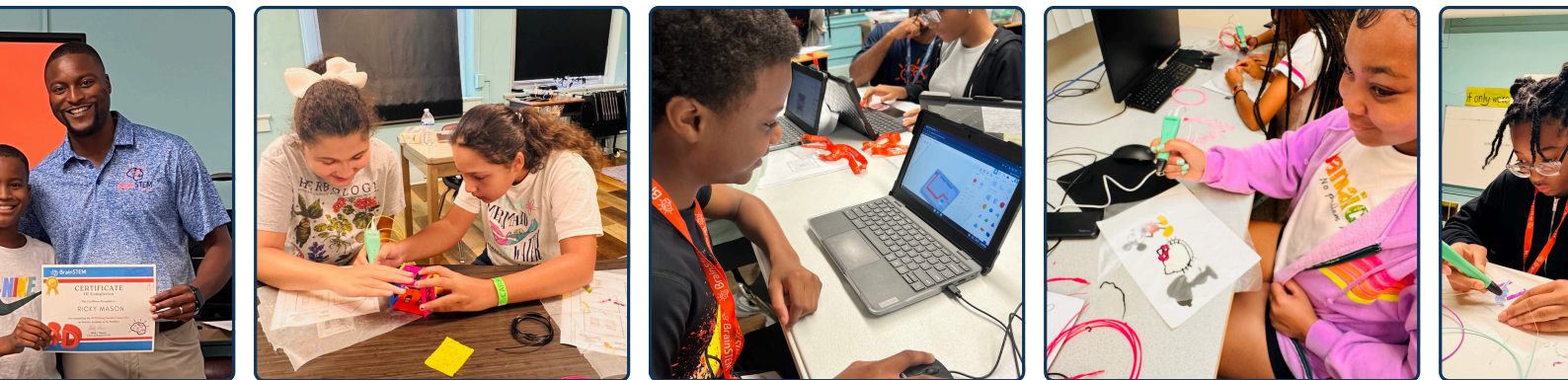
Game Development & A.I. Camp: Building Coders, Creators, and Critical Thinkers

BrainSTEM University's Game Development & A.I. Camp gave students a powerful introduction to the world of coding, storytelling, and artificial intelligence. Over the course of one week, students learned how to code playable games, design characters, and use cutting-edge A.I. tools to enhance their creativity and productivity—experiencing firsthand how the world of tech is evolving.

Students used Microsoft MakeCode Arcade to build a foundational understanding of game logic, then applied those skills to create a space-themed maze game called Astro Space Bars. After mastering core concepts, they launched into independent game design, combining original storylines, obstacle layouts, and game mechanics.

Projects Included:

- Coding a full maze game in MakeCode Arcade
- Writing a Game Design Document (GDD) using ChatGPT and Copilot
- Designing pixelated 2D hero characters

- Creating 3D hero models with Meshy.ai and Midjourney
- Viewing their creations in augmented reality (iPad) and virtual reality (Meta Quest)

Learning Outcomes:

- Understanding of game design elements: player, goal, obstacles, rewards
- Introduction to block-based programming logic
- Exploration of text-to-image and text-to-3D AI generation tools
- Experience writing and revising digital content using AI collaboration
- Familiarity with immersive tech (AR/VR) as a creative and technical tool
- Increased confidence in self-expression through technology

Real-World Connections

Students explored career pathways such as:

- Game Developer
- Game Designer
- A.I. Prompt Engineer
- Digital Artist or Animator
- Computer Programmer

These roles highlighted the dynamic and interdisciplinary nature of tech careers—where creativity, logic, storytelling, and design intersect.

A Fusion of Literacy, Math, and Art

Game development uniquely blends logical thinking (if/then commands, loops, conditionals) with visual design and narrative structure. Students exercised mathematical thinking through positioning, grid coordinates, and collision logic—while also building imaginative worlds with characters, sound effects, and backstories.

This blend appeals to a wide range of learners—from storytellers and artists to puzzle-solvers and tech-tinkerers—making it an ideal entry point into STEM.

Designed with Neurodivergent Learners in Mind

Our Game Dev & A.I. Camp proved especially effective for neurodivergent students, many of whom flourished in the camp's self-paced, project-based environment.

We observed:

- Heightened engagement when students worked on self-directed game ideas
- Improved communication skills when explaining their games to peers and mentors
- Reduced frustration due to the visual, block-based coding interface
- A safe space to express individuality through character design and gameplay logic

By giving students creative control and flexible tools for expression, this camp empowered all learners to shine—particularly those who might struggle in more traditional academic settings.

Robots & Drones Camp: Engineering Curiosity Through Code, Flight, and Imagination

At BrainSTEM University's Robots & Drones Camp, students were introduced to the exhilarating world of robotics, engineering, and drone technology. Through hands-on activities, immersive simulations, and real-time problem-solving, students explored the foundational skills behind automation, aerospace, and mechanical design.

This camp focused on making engineering and coding fun, interactive, and empowering—especially for students new to STEM or those who learn best through movement and visual experiences.

Projects & Activities Included:

- Learning to fly mini drones and navigate through custom obstacle courses
- Understanding the Four Forces of Flight (lift, thrust, drag, and gravity)
- Programming Sphero Bolt robots to autonomously travel through mazes with lights and sound
- Designing and measuring custom racetracks and navigation challenges
- Experiencing drone piloting in a VR flight simulation, providing lifelike visuals and controls
- Exploring how drones are used in real-world industries like disaster relief, agriculture, and delivery

Learning Outcomes

- Introduction to block-based programming logic and automation
- Applied understanding of physics concepts related to flight
- Practice with measurement, angles, and spatial reasoning
- Experience in iteration and debugging, especially in drone obstacle runs
- Development of teamwork and communication during collaborative drone challenges

Real-World Career Connections

This camp introduced students to exciting, fast-growing STEM careers such as:

- Aerospace Engineer
- Drone Pilot / UAV Operator
- Mechanical Engineer
- Robotics Engineer

- Drone Technician / Mechanic

These careers helped students see how their camp experience connects directly to emerging industries shaping the future of technology, transportation, agriculture, and space exploration.

STEM Integration in Action

Robots & Drones Camp is deeply interdisciplinary—blending:

- **Math**: measurement, angles, estimation, and distance
- **Science**: physics, gravity, aerodynamics
- **Engineering**: design thinking, testing, and iteration
- **Technology**: programming, automation, and immersive simulation

This kind of active, real-world application keeps students engaged while strengthening their critical thinking and problem-solving skills.

Supporting Neurodivergent Learners

We observed that neurodivergent students (including those with ADHD, autism, and sensory sensitivities) thrived in this fast-paced, visually stimulating environment. The hands-on, goal-oriented activities allowed for multiple modes of learning—visual, kinesthetic, and tactile.

Observed outcomes included:

- Increased focus and task persistence during drone races and coding sessions
- Strong engagement with the feedback loops of trial-and-error challenges
- Boosted confidence as students saw their robots respond to their programming in real time
- Enjoyment in repetition (especially common with autistic learners), which helped them master flight patterns and programming sequences

By combining movement, logic, and real-time results, Robots & Drones Camp offered a uniquely inclusive learning experience—proving that STEM is for every brain.

UNMATCHED
TOOLS &
TECHNOLOGY

BrainSTEM University operates the largest inventory of STEM equipment among regional youth programs, including:

- 20+ 3D print pens, Creality & Ender 3D printers (PLA & ABS filament)
- 8 mini drones + Drone Pilot VR simulator
- Robots: Sphero Mini, Edison, mBot, Botley, Rescue Robots
- 8 Meta Quest VR headsets
- Scratch and MakeCode video lesson libraries
- YouTube STEM news + career playlists narrated by real engineers and scientists
- 50+ Beyblades, LEGOs, Magnetiles, and STEM kits for hands-on engagement

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"At BrainSTEM, we don't just teach STEM—we prepare students for the future. That's why every camp we run includes hands-on experience with AI tools. We want our students to understand and shape the technologies that are changing the world. It's how we keep them ahead of the curve."

— Ricky Mason, CEO & Founder, BrainSTEM University

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SCHOLARSHIP
IMPACT

At BrainSTEM University, we believe cost should never be the reason a student misses out on a transformative learning experience. That's why we awarded **38 full scholarships** this summer—covering tuition, materials, snacks, and insurance for three weeks of STEM camp. These scholarships made it possible for students from families with limited financial resources to participate fully in high-quality STEM learning without added stress on their households. For one family, the support meant they could enroll **all four of their children**—an opportunity that would have otherwise been out of reach.

But financial support alone isn't enough. Access also means proximity. That's why we intentionally hosted camps in areas where these opportunities are rarely offered. Our locations this summer included West Louisville and Downtown Louisville—communities that have historically had fewer enrichment programs, especially those focused on advanced technology, engineering, and innovation. By bringing our programs directly into these neighborhoods, we removed not just the cost barrier, but also the transportation and accessibility barriers that prevent many families from participating in extracurricular learning.

These camps didn't just keep students busy for the summer—they planted seeds. Exposure to real-world tools like 3D printers, drones, robots, and A.I. platforms introduced students to careers they'd never considered. It gave them confidence in their ability to problem-solve, create, and lead. For students who may not see STEM represented in their everyday environments, these experiences showed them that the future is within reach—and that they have a place in it.

> **"Without the scholarship, my kids wouldn't have been able to participate. Now they can't stop talking about STEM!"**
> — *Cara Guy, BrainSTEM Camp Parent*

Thank you to our sponsors!

LET'S
PARTNER UP

We're planning for Summer 2026 and beyond—with a focus on expanding to more locations and continuing to eliminate financial barriers for families.

Your support helps us grow our K–Career STEM pipeline and unlock life-changing opportunities for young learners.

How You Can Help

Donate – Fund scholarships, equipment, or instructor stipends
Partner – Bring BrainSTEM to your school, nonprofit, or city
Share – Help us tell our story and inspire more young scientists

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Donate