

An Administrator's Perspective on Innovation and Invention

With Mandi Figlioli Assistant Superintendent, Burgettstown Area School District



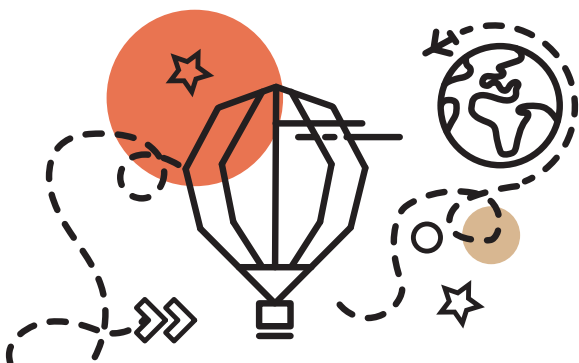
Burgettstown Area School District is a Pennsylvania public school district committed to providing 21st-century learning experiences for all learners. As a rural school district in Southwestern Pennsylvania, the district serves approximately 1,035 students, where over 40% are economically disadvantaged. Pennsylvania's public schools are funded primarily through local property and business taxes, which creates challenging economic circumstances for Pennsylvania's small rural districts, without significant tax bases for schools who want to go beyond the basics for their students.

“IN A TIME OF RAPID CHANGE, IT IS IMPERATIVE THAT SCHOOLS ADAPT TO THE SOCIAL AND TECHNOLOGICAL ADVANCES OCCURRING ALL AROUND THEM.”



Over the years, we had focused on providing a solid education focused on a fairly-traditional curriculum. However, time and changes within our community demonstrated that we had to do more for our students. We began by embracing “the four C’s” as a tool set for our students entering the work force or post-secondary school. We created experiences that required them to employ creativity, communication, collaboration, and critical thinking to both find and solve authentic, real-world problems.

As the Burgettstown Area School District Assistant Superintendent in the spring of 2016, I was presented with a unique opportunity to tour Inventionland with a cohort of regional education leaders. Inventionland is an immersive workspace where work and play intersect. It is the world's largest invention factory and as such its primary function is to take an inventor's idea through a developmental process that allows it to be brought to market. The development process is visibly active as you walk through the "factory" which is set in a magical and immersive environment featuring a castle, a pirate ship, a tree house and a number of other truly special sets. As we walked the factory floor, we could see engaged makers, innovators, and inventors in action. As education leaders we left energized, not just to brainstorm product ideas or new iterations of old ones, we left inspired about the possibilities we could create for our students and the young people of our communities. As I left, I began to re-imagine the District's learning spaces and pedagogical practices.



When we were presented with the Inventionland Institute Course at the end of the tour, I knew I had to find a way to bring this captivating learning experience to Burgettstown. The curriculum created an opportunity to provide a robust, hands-on, minds-on, personalized learning experience by empowering student voice and real choice in learning. It was standards-aligned and future-focused. Working with community partners and funders, we secured access to the curriculum and tools necessary to offer the Inventionland curriculum to our students.

At the start of the 2016 school year, the Inventionland Institute Course was offered as a high school elective and the inaugural journey did not disappoint. Students soared when given the opportunity to be the designers and developers of their learning journey. They selected a wide range of problems to tackle. The course can be employed using low-tech tools such as cardboard and hot glue. It also offers opportunities to become fluent at using high-tech tools such as 3D modeling software and digital fabrication, if they are available. The diversity in materials and customization of topics makes the course appealing to students of all interests, abilities, and backgrounds.

One particular student invention proved to be quite novel and useful on campus. Joe, a sophomore, often noticed his teachers struggling to keep their dry erase boards clean. Colored markers didn't fully erase and they were fumbling with cleaning sprays and countless paper towels. He was determined to find a simpler way for the teachers to have a fresh surface each day.



His quest led to the invention of the “Blazer Eraser,” a spring-loaded, dry erase, wet wipe dispenser that mounted directly to the board. It was a teacher’s dream, and the Gold winner of Inventionland’s first Annual Regional Invention Competition.

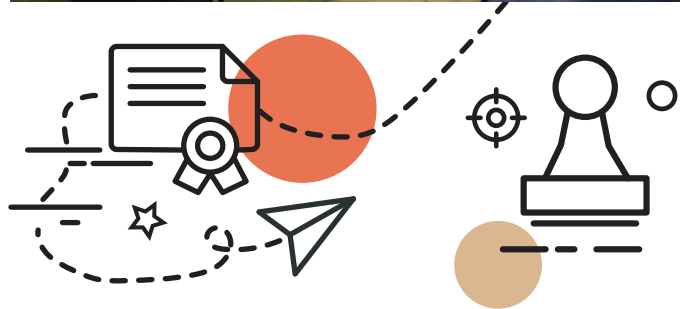
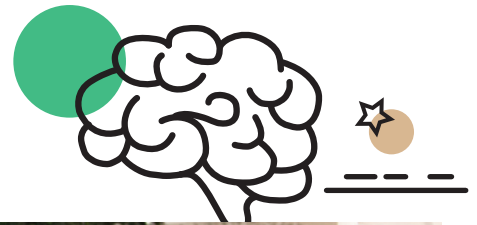
When Joe was asked to reflect on his experience in the course, he stated, “It taught me a lot about design work and perseverance. It was also great to have the opportunity to speak publicly and present my ideas.” His parents also raved about his experience, “The project was a great example of how collaboration between education and business can motivate and provide real experiences for our kids. The work really mattered.”

These testimonials capture the deeply personal and meaningful experience that the course offered to students. As students navigated through the nine-step iterative design process, they not only explored problems they had deemed worthy of solving, but also gained valuable employability skills such as: researching, budgeting, collaborating, time management and self-efficacy.

At the heart of a course, which is rich in academic and career education standards, lies entrepreneurial spirit. For those who seek it, it is an invitation to invent and change the world. Burgettstown Area School District had another student who did exactly that.

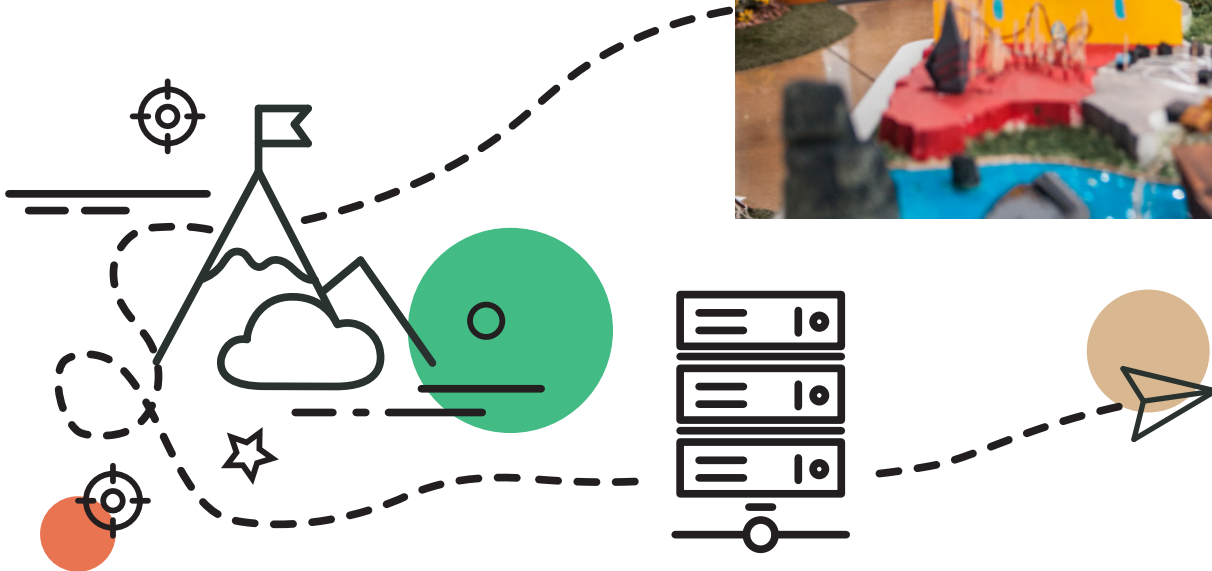
Evan first enrolled in the course during his sophomore year. With a strong conviction for public safety and a future career in the military, he took on the challenge of designing a “Police Gear Stand” that allowed officers to efficiently organize and store the many pieces of gear required for their work. He earned Bronze with his invention at Regionals that year. He enrolled in the course again in his junior year and designed “The Lockdown Bar,” a thoughtful solution for school safety and a Silver winner at Regionals. In the summer before his senior year, Evan and his father began marketing and selling Evan’s products.

They also streamlined their design to keep doors closed in the event of a school shooting. He concluded his high school journey with his third enrollment in the course and another school safety solution, “The Stable Cable.” It was this invention that earned him the Gold title at Regionals, which he had been seeking for his entire high school career. This award not only signified an academic accomplishment, but for Evan it reinforced the power of staying engaged, of contributing to something larger than himself, all while positioning him for even greater success after school ends and “real life” begins.



Over the years, the course's impact has moved beyond the walls of the District's classrooms. Teachers have begun inviting community and industry partners to mentor students and serve as judges in a "Local Shark Tank." Each semester, these partners come to our campus to help students refine their pitch prior to the school competition. They offer constructive criticism as community and business partners, as well as market-based ideas to help students clarify their processes and/or presentations.

It's what might be described as a virtuous cycle; our students win, our schools win, and the business and community leaders are amazed at the ingenuity of the students and their ability to find and solve real-world problems. This builds faith and community into our local school system, while deepening the investment in the Burgettstown Area School District.



Schools Lead by Innovation and Inventing

Inventionland Institute's Innovation Course provides courseware that was invented to cultivate innovative thinking in every type of student in every type of school.

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