



infento



trē·o·bytes

Case Study

Infento Transforms Structural Engineering Programs in San Diego



Interested in having Infento at your school?
Contact us today!

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Ava Mason

Executive Director

Treobytes is a nonprofit organization that serves numerous schools and approximately 2,000+ students each year throughout San Diego County, including Escondido, and Riverside County. Led by Ava Mason, the Executive Director, **Treobytes** introduces and teaches Science, Technology, Engineering, and Math (STEM) to elementary and middle school students to help form a more equitable STEM workforce. Treobytes seeks to make STEM

education accessible to every child, regardless of their socio-economic status. When **Treobytes** encountered Infento, they recognized an invaluable opportunity to elevate their Structural Engineering Programs.

What Was The Challenge Treobytes Was Facing?

Treobytes sought to provide a dynamic, hands-on learning experience that would engage students in engineering concepts while also fostering creativity and problem-solving skills. They needed a versatile tool that could be integrated into their existing programs and appeal to students with varying levels of interest and expertise in engineering. When **Treobytes** conducts lectures, it's important that the students can

truly connect to the concepts covered in the lecture. With Infento, we could engage students to connect the lectures on topics in physics such as torque, resistance and more with the actual Infento components and builds.



What Was The Initial Excitement Treobytes Had For Infento?

What initially piqued **Treobytes'** interest was Infento's versatility and the promise of a "real engineering" experience for students. The wide variety of building possibilities and the tangible benefits of hands-on learning convinced them that Infento could be a strong fit for their students. When a modular product line not only offers you the ability to create infinite invention possibilities but also functional, life-size inventions that the end consumer

can actually use, the experience for students becomes elevated to another degree. The excitement factor sticks with the students from initial conception of the idea through the growing process of the build phase, through the usage of the invention once complete. Upon discovering Infento we could visualize those possibilities for our students and felt inspired to want to try and bring that dream to reality for our staff and students.

How Did Treobytes Implement Infento?

Treobytes integrated Infento into their Structural Engineering Programs, offering a rich blend of practical skills and theoretical knowledge. The programs ranged from beginner to advanced levels, with over 120 total students, in grades 5th - 8th. These programs provided a comprehensive educational experience. Students were actively involved in both the design and construction phases, working collaboratively to bring their ideas to life. Students were also able to gain hands-on experiences with simple machines, hand tools, and physics forces.



Students also gained valuable troubleshooting and repair experience. **Treobytes** purchased **9 Pro Kits** and was able to divide the students up into groups between 4 - 6 students to work collaboratively on the different inventions. Given the methodical way in which Infento's LEGO like instructional manuals



are written it allowed us to be able to break the groups down to smaller pairs of students each being able to be engaged in the build process without anyone feeling left out.



What Was The Inventing Process Like?

Inventing with Infento was an exhilarating journey for both staff and students at **Treobytes**. They started by brainstorming design concepts and progressed to intricate constructions. Mid-way through, students were fully immersed in the engineering process, grappling with challenges and reveling in their successes.

By the end of the program, they had created a myriad of structures, each a testament to their ingenuity. Being able to build the Mini-Bike invention and Wheelbarrow invention specifically were the biggest hits amongst the students because of the ability to use the inventions afterwards, have fun with them and then disassemble them completely to then build something else.



The ability of students to add electric propulsion to their builds was incredibly exciting for the students and they thoroughly enjoyed safely driving their mini-bikes in a closed environment. Creating fun relay races and obstacle courses afterwards provided the students with very positive, fun, and enjoyable experiences that will last a lifetime where they can say during summer 2023 they built their own electric vehicle at **Treobytes** summer camp.

What Impact Did Infento Have on Students?

Treobytes believes that the experience with Infento will have a lasting positive impact on their students. They expect that the hands-on engineering skills and teamwork will empower students to explore more advanced STEM fields in the future. Our younger students in elementary schools now have the confidence and knowledge to explore future programs their school might offer in robotics and engineering and will be able to jump right into those programs with the skills, and capabilities to contribute without having any fear. Girls in our program were able to see first hand how rewarding engineering can be by using Infento and that was a huge plus for our organization as we believe it's very important girls be well represented



in STEM. Being a California based nonprofit, electric vehicles are everywhere especially with the presence of Tesla's factory in Northern California. Our use of Infento the last 2 years will make our students excited about the electric vehicle industry and allow them to make real world connections to that industry. As our students get older and graduate high school there's no doubt future careers across robotics, mechanical engineering, and electrical engineering could be real pathways for these students that they would already have a great head start on as a result of using Infento.



What Were The Results and Expectations?

Infento exceeded **Treobytes'** expectations. For starters our two week long camps were completely filled to capacity and we had a long wait list for additional campers looking to join this camp. The product not only delivered on its promises but also provided additional value by enhancing student engagement and enriching the Structural Engineering Programs. We wanted our students working in groups, collaborating on inventions, and experiencing the jubilation that comes with completing any important project and the feeling of proud accomplishment.

There is no doubt our students experienced that feeling on multiple occasions with each invention they built with Infento. Some of the things that we enjoyed most while using Infento that helped us get the positive results we experienced were the detailed instruction manuals that anyone can follow.



These instruction manuals reminded us of LEGO where you simply follow the well designed visual steps and eventually get to the finish line of a completed build a few hours later. Infento's instruction manuals don't require a user to have any background in engineering and we believe this ease of use is the key reason why any educational organization can be successful with Infento. Additionally, advanced students can also be challenged by creating their own builds without following any instruction manuals.





Advice for Future Users

As a STEM focused nonprofit, we would strongly recommend Infento to future educators, schools, and families. The product's adaptability, durability and educational value make it a worthwhile investment for anyone interested in hands-on STEM education. The parts and pieces hold up very well. It is extremely satisfying when you know that the purchase you're making can last for many years afterwards.

When you can witness students building inventions, having fun with them, and then rebuilding something brand new afterwards all while the parts continue to hold up and be reusable for multiple years, that really is the icing on the cake. It really makes you feel good as an organization knowing that your money is being well spent and that you're getting ultra positive ROI over the long term for a small up front investment in the product.



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