

FROM ART TO SIMART

How sand becoming glass has taken a turn in the digital age.

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Team 6485K: The Royal Robots



Photo by: 6485K

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Why Blenko Glass?

What if we told you that you can maintain tradition, artistry, and handmade craftsmanship and still be a part of the smart, digital era? Sounds impossible, right? Well, Blenko Glass Factory in Milton, West Virginia, has done just that.

From creating better molds, to improving the production model, Blenko has utilized the engineering design process to guide the company into the digital age without sacrificing their 131-year family tradition. We wanted to know how the company has changed in the past 100+ years now that we have computers to assist us. Through the use of new apps, which assist in tracking glass levels, movement, warehouse productions and circulation through the factory, to e-commerce, which has allowed Blenko to reach customers around the world, the creative directors and vice president of manufacturing are hard at work keeping Blenko thriving in the modern age.



Our team at the factory

Interview with David Wertz

Blenko Glass Vice President of Manufacturing

We were given the opportunity to tour the factory and interview the Vice President of Manufacturing at Blenko Glass, Mr. David Wertz. One of our first questions was about how the company has moved itself into the digital era but maintained the classic craftsmanship that it values. Mr. Wertz was super excited and proud to share how his middle school experiences in coding and robotics led him to his field in digital marketing. In the past 7 years he has moved Blenko from wholesale and catalogs to direct-to-customer sales. He showed us the apps he has designed in order to streamline the work that once took many people hours and hours. He first came up with the idea and what he wanted the app to accomplish. He researched ways to merge many of his needs into one single app. Using his coding skills, and some trial and error, he was able to launch the product that now helps to run the factory smoothly and more efficiently.



Interview with David Wertz (continued)

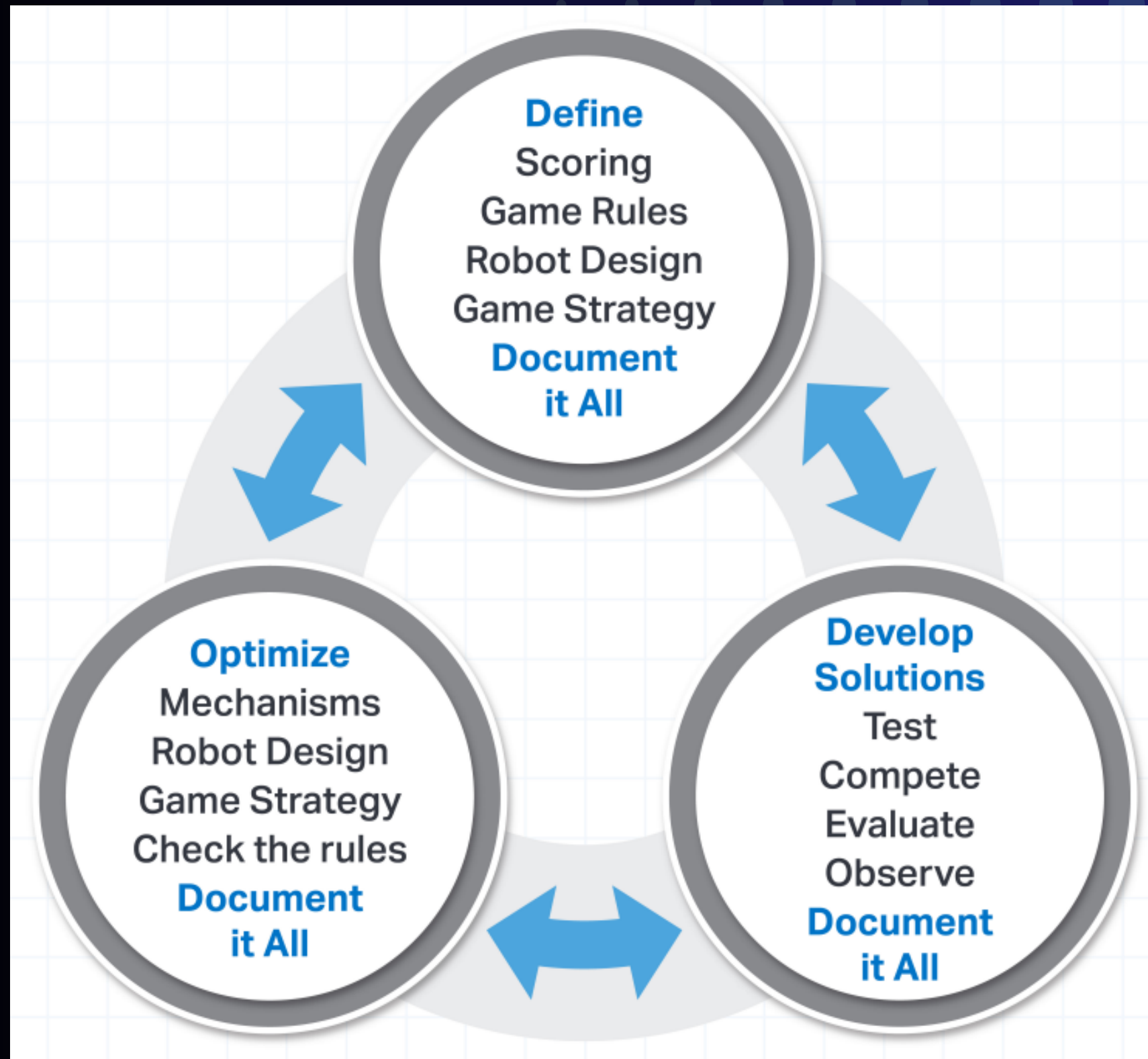
The Design Process Explained

The next question we asked was about the design process on the factory floor. We wanted to know how they come up with new designs. Mr. Wertz said they pride themselves on keeping the hand-crafting tradition alive. Molds are still made from the cherry wood used for generations. They first brainstorm an idea. Next, they sketch their idea and collaborate. Then, they experiment with mold designs carved into the cherry wood and see what works. If the glassblowers find flaws in the design, they work on a solution, or begin the process again. As for the future, well, the man who has carved the designs for the past 43 years has many apprentices, however, some of the new designs are being carved by Computer Narrated Controlled (CNC) 5 axis-controlled devices. Mr. Wertz told us the design process is still the same; however, the design is carved by the computer instead of by hand.



Hand-carved vs. CNC Cut Molds

Design Process According to the REC VRC Library



Our team's Engineering Design Process is guided by the 3 simple steps that the REC Foundation outlines on their website.

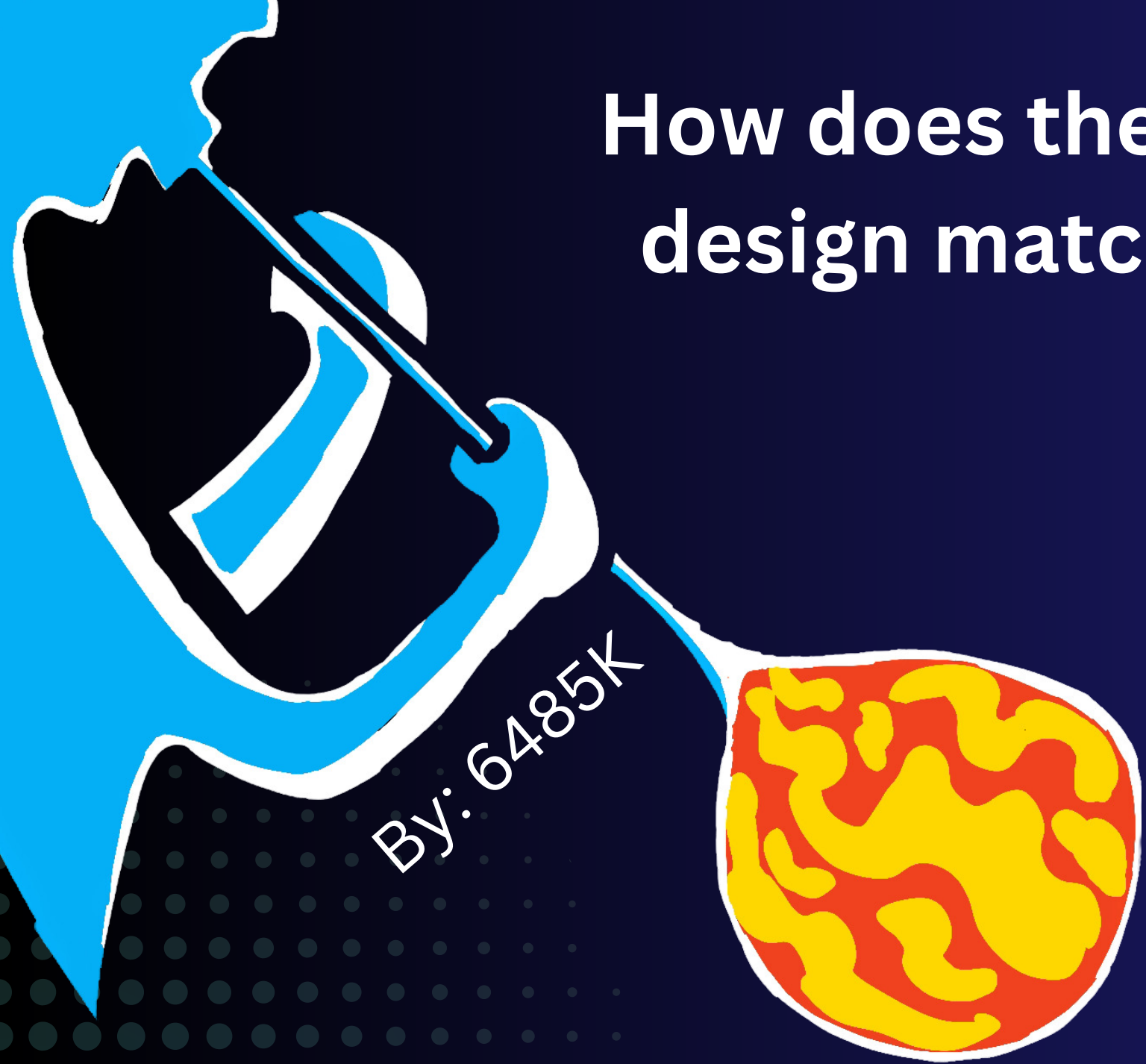
- Define
- Develop Solutions
- Optimize

We first define our problem or task and then we come up with ways to solve the problem. We make decisions based on our role on the team. For example: the builders decide on the design of the robot by working together and deciding what would best suit the game and what we are wanting to achieve. We look for ways to modify or change something for the better based on the drivers' feedback. The coder tests and retests the code to see what tweaks need to be made in order to have a working robot and successful autonomous program.

The Engineering Design Process at Blenko



How does the professional approach to engineering design match or differ from the approach used by your team?



We believe there are more similarities than differences between the Engineering Design Process the Blenko Glass Factory uses and the one tht we use for building our robots. First, they brainstorm and sketch an idea, much like we do for the type of robot we want to build. Then, the develop a prototype. This is like when make our first build. They test the design to see if it works. We also test the robot and code to see what works and what we need to change. Once we have solved the problem, then we move on to the next task.

“Experimentation is a big part of the design process. Innovation happens by accident.” -David Wertz , VP of Manufacturing

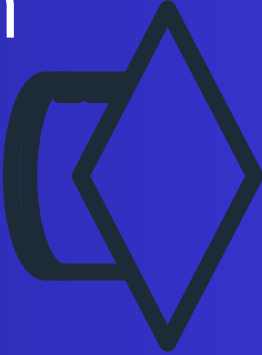
Mr. Wertz also used this process when building his apps for the factory. He thought out what he needed to accomplish and got to work coding. When something didn't work, then he researched, modified, and reached out to other professionals to assist in finding the solution.

How has participation in VEX Robotics prepared you for a future career?



TEAM 6485K

We feel like our participation in Vex Robotics can prepare us for our future because we are learning how to work with other people we do not know. Being able to brainstorm with each other, compromise, and come up with a solution is not only a useful skill in a career, but also in daily life. It also helps us with creative thinking, problem-solving, and planning the next step. Many jobs will require the use of computers in the future and learning to build and program will be useful skills we have learned through our participation in this program.



More From our Tour



Sources:

REC VRC Design Process Image

Credits:

Canva for Education

All photos were taken at Blenko Glass during the trip.