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Superintendent

Inside this special insert to our newsletter, I am celebrating our Rube Goldberg Machine team at Kimberly High School for finishing fourth at the national competition. This STEM (Science, Technology, Engineering and Math) activity provides students with a hands-on learning experience where they problem solve as a team.

This is a great example of Academic and Career Planning because participants gain awareness of careers, such as engineering and fabrication. STEM opportunities like the Rube Goldberg team are preparing students for high-demand and good paying careers that exist right here in our community.

-- *Bob Mayfield*

## *Rube Goldberg Machine Team Takes a Fourth Place Finish to the Bank*

The Kimberly High School (KHS) Mechanical Design/Rube Goldberg team finished a great season by taking fourth place at the national competition. This year, the Rube Goldberg Machine Contest's assigned task was to put money in a piggy bank. The KHS' Super Mario Brothers themed machine accomplished this task in 75 unique steps.

The Kimberly team members were: Mackenzie Beck, Noah Eichstaedt, Luke Endries, Trevor Lamers, Emma Langenhuizen, Chase Robinson, Jared Schumerth, Xander Shampo, Sean Twomey and Alex Vander Pas. These students advanced to compete at nationals in Lawrenceburg, Indiana, after taking second place at STEM Forward's Wisconsin Regional Rube Goldberg Machine Contest.

The purpose of a Rube Goldberg Machine is to over complicate a simple task in a humorous and creative manner. The contest required machines to have between 20 and 75 steps to accomplish the task of depositing money in a piggy bank. In just over a minute, the KHS Rube Goldberg Machine puts coins into a piggy bank using a variety of scenes, scenarios and characters from the Super Mario Brothers video game universe.

Picking a theme for the machine helped to get the design and creative process in motion. "We wanted to make a fun animated cartoon," said team member Mackenzie Beck. "We used characters from the game and all the different aspects of it."

The students learned to work as an engineering team and go through the design process of brainstorming, sketching, computer-aided design (CAD) modeling, building and fabricating. "When we first started, we separated it into three different parts: the right, middle and left part so then people could work on the different parts," said student Noah Eichstaedt.



KHS Rube Goldberg Machine team members in their Super Mario Brothers themed costumes (pictured left to right): Emma Langenhuizen, Mackenzie Beck, Alex Vander Pas, Sean Twomey, Chase Robinson, Trevor Lamers, Xander Shampo, Noah Eichstaedt, and Jared Schumerth. (Missing from the photo is their teammate Luke Endries.)

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Bringing all the parts together to function as one machine involves hours of team work and problem solving. “Each person designs and constructs their own part and then once they are all put together we work together to make one flow to the other,” said team member Alex Vander Pas. Student Trevor Lamers added, “It starts off where everyone has their own part and as it progresses we all help each other to make it run perfectly.” Several members of the team described their favorite parts of the machine in this video <http://bit.ly/khsrube>.

The team also had to create a presentation describing their machine’s process. They had fun with the Mario theme and created a skit-like presentation where each team member played a character from the video game. The students even handcrafted their character’s costumes. Of course, there were hero roles like Mario and Luigi, played by Mackenzie Beck and Luke Endries. A video game isn’t complete without villains and that is where characters such as Wario and Waluigi, represented by Trevor Lamers and Chase Robinson, came onto the scene.

As Mario and Luigi journey through each level of the world there were obstacles, more villains and prizes. The ultimate goal of a video game is to defeat the boss monster, which in the student’s Rube Goldberg Machine was Bowser. Played by student Jared Schumerth, Bowser aimed to stop Mario and Luigi from stealing the coins inside his castle. Schumerth was assigned the supervillain role by his teammates in his absence. “These guys just picked me and let me know,” said Schumerth. “I guess I stuck with it.” He embraced the character and constructed a creative costume featuring Bowser’s signature spiked shell, horns and shock of bright hair.

The team members amassed many memories during every step of the process. “The experience was really the best part of it,” added Schumerth. “Working with everyone and going through it together.”

Technology education teacher and team advisor Kevin Janota believes the makeup of the Rube Goldberg team is part of what makes it successful and helps students prepare for their future. “The team continues to get a really good mix of students,” said Janota. “About half the team is interested in engineering, otherwise they’re looking at skilled trades and marketing. It gives everyone a place to work on a common project together. Learning to work together on something is huge.”



The Rube Goldberg Machine created by the Kimberly High School team.

When asked what aspect she’s most proud of Mackenzie Beck stated without hesitation, “All of our perfect runs.” But just like in real life, the imperfect runs also taught the team many lessons. One component that had their theme’s namesake character, a part they called the “Mario Lever,” was a challenge to get working in a reliable manner. Another component that kept the team on their toes was the flag at Bowser’s castle. This piece was within the last few steps of the 75-step process, but proved a difficult aspect because it would become unreliable at the most inopportune times – at the competitions.

Throughout the whole process, the team had to continually reflect on each part and make adjustments to get the machine working together. The imperfect runs taught the team to persevere, be creative problem solvers and to work together in order to accomplish something much bigger than their one part.

“This machine is amazing,” said Janota. “We were disappointed that we finished fourth but proud of the work. I could not believe how many people came up to us afterwards and told the students how great their machine was. That made us feel better right away.” To watch a video of their Super Mario Brothers themed machine in action, go to <http://bit.ly/khsrubemach>.

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**--Jared Schumerth**  
**Senior at Kimberly High School**