

**FOR IMMEDIATE RELEASE**

**March 9, 2021**

**Contact:** Kristofer Sippel  
CEO/Superintendent of Schools  
San Tan Charter School Inc.  
480-222-0811

## **Bailey Tischer, a Junior from San Tan Charter School in Gilbert, Develops Working Electroporation Device**

*Bailey Created the Device, Which Sends a Split Second of High Voltage Electricity into a Vial Containing Cells, Causing the Cells' Membranes to Open and Allowing Antibiotics to Enter*

**GILBERT, Arizona**—School science fairs often feature dioramas about Thomas Edison and electricity, poster boards that explain how crystals grow and the always popular vinegar and baking soda volcano.

Bailey Tischer, a 16-year-old junior from San Tan Charter School in Gilbert, has taken her school's science fair project to a whole new level with an experiment that may have a real impact on the way diseases can be treated.

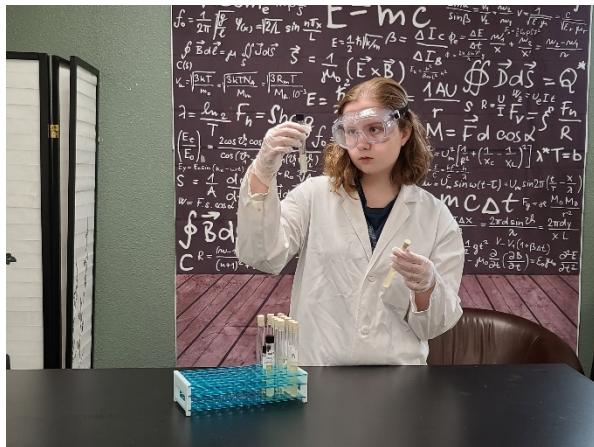
Bailey, who is in the school's gifted program, developed her own electroporation device for the event.

In the real world, this type of device is worth about \$2,000. Bailey figured out how to make a working model for \$2.

As Bailey explained, an electroporation device is an instrument used to send a split second of high voltage electricity into a vial containing cells in an attempt to open the cellular membrane of the cell, thus allowing vital antibiotics to enter it.

“In theory, this research can help cure diseases and illnesses at a much faster rate,” Bailey said adding that she created her first circuit-based electroporation device in 2019.

Her first device used an Arduino that sent 300 volts of electricity into a vial for 3/10 of a second. The device successfully increased the antibiotic acceptance within the cells and the petri dishes that received the electroporation showed a significant decrease in bacterial growth, Bailey said.



Although Bailey was ready to display her first electroporation device in March of 2020, San Tan Charter School had to cancel the annual science fair. Bailey was also unable to access the laboratory at school as students were learning from home during the fourth quarter.

To help keep her interest in science up and running, last summer Bailey applied and earned a position in Arizona State University's Science and Engineering Experience (SCENE), a mentoring program for molecular and bio-engineering sciences.

"During the program, I was able to work one-on-one with Professor Nathan Newman to continue to enhance my electroporation research," Bailey said.

Newman and the other professors involved with the SCENE program were definitely impressed with Bailey and her hard work and perseverance.

"To our delight, Bailey chose an interesting and important question: what factors determine the permeability of cell membranes to biological species? If successful, the results of this experiment will play an important role in the development of new antibiotics, an essential tool in every doctor's toolkit," Newman said.

Bailey learned quickly and her persistence consistently paid off, Newman said, adding that the experiment went remarkably well and he is confident that it will provide important and useful answers.

"What Bailey achieved is very impressive for any student, let alone one still in high school. It has been so great having such a talented and enthusiastic student working in our program at Arizona State University."

When students were able to return to San Tan Charter School in September of 2020, Bailey was once again able to access San Tan Charter School's science lab and continue her research even further.

Bailey took her research to a whole new level by making a new electroporator with \$2 worth of supplies.

"My hand-built device successfully electroporated the cells by opening the cellular membrane, allowing antibiotic and DNA to enter the cell. Also, the petri dishes that received electroporation showed a substantial success, proving the device worked," Bailey said.

Brandon Tauscher, Principal at San Tan Charter School, said he will always remember the day when Bailey learned that her experiment was successful.

"She was literally bouncing around the room, beaming with excitement as she proudly told everyone in the office. I couldn't be prouder of her," Tauscher said.

"Bailey is just one example of our brilliant student population here at San Tan Charter School. One-third of our population is identified as gifted and we pride ourselves on creating the right individualized program to challenge and advance each gifted student. Our 7th-12th grade Scholar's Prep Program and our K-6 self-contained gifted classrooms help assist in accomplishing amazing things like Bailey has done this year. I can't wait to see where her career takes her into the future."

**\*\*\*ADDITIONAL PHOTOS AVAILABLE UPON REQUEST\*\*\***For more information about Bailey Tischer's experiment or to interview her and/or teachers from San Tan Charter School, please contact Kris Sippel at 480-222-0811.

### **About San Tan Charter School:**

San Tan Charter School is a Kinder-12th grade public non-profit tuition free charter school with two campuses in the East Valley within minutes of each other. The Power campus is a Junior High/High School serving students in grades 7-12 and the Recker campus is an elementary school serving students K-6 including a private Montessori preschool infant, toddler, and PreK. The school uses a Love and Logic® approach to classroom management that is focused on building relationships and communicating with respect. The school focuses on "Education with a Purpose," which means the teachers encourage their students' love of learning, which enables them to face challenges and develop critical thinking skills. San Tan Charter School also offers a championship athletics experience, individualized learning plans, and college and career ready programs. The school is focused on maximizing each student's intellectual development with

Gifted & Montessori classrooms, Honors/AP classes, Concurrent/Dual Enrollment classes and robust elective choices including career and technical education (CTE). For more information, please visit <https://santancharterschool.com/>