



**CALIFORNIA SCIENCE & ENGINEERING FAIR  
2019 PROJECT SUMMARY**

<b>Name(s)</b> <b>Brooke McMorris</b>	<b>Project Number</b> <b>S0318</b>
<b>Project Title</b> <b>Archimedean Faucet: A Miniature Hydraulic Turbine</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives</b> The objective of this project was to produce an Archimedean Screw Generator in the form of a faucet that efficiently utilized the flow of sink water to generate electricity.</p> <p><b>Methods</b> I used a 3D printed Archimedean Screw to convert the potential energy of flowing water into mechanical energy, which was then converted into electrical energy by a DC motor that operated as a generator. The entire system was contained in a 3D printed prism that served as the spout of the faucet.</p> <p><b>Results</b> The third prototype of the Archimedean Faucet did not generate a sufficient amount of electricity because the Archimedean Screw, which the entire electrical generation is dependent on, did not rotate. However, I discovered that Archimedean Screw rotates when resistance is eliminated from the turbine.</p> <p><b>Conclusions</b> I concluded that an Archimedean Screw Generator can be efficiently implemented to a faucet as long as the turbine rotation is maintained.</p>	
<b>Summary Statement</b> I designed a miniature Archimedean hydraulic turbine in the form of a faucet.	
<b>Help Received</b> I did not receive any form of assistance in the research, design, or construction of the project.	