



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Isaac A. Linares Sanchez	Project Number J0318
Project Title Improved Railroad Gates	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Objective: My project is to improved railroad gates by making them stronger and bigger, as well as making sure that cars can#t cross over easily. I think that if we use a metal gate that comes out from under ground will work better, than just having two wooden arm gates come down.</p> <p>Methods/Materials Materials and Method: Using Popsicle sticks and wire I built a jack that will push the metal gate to the surface of the ground. The gate was made with cardboard and wrapped in foil paper to make it look like metal. At the bottom of the jack I attached one syringe and handy plastic tubing connecting to a second syringe, that were filled with water. This allows the first syringe to push water to the second syringe and giving force to push the jack so that it will move upward, and the other way around to make it go down. A box was used to create the surface of the ground and inside the box is the structure of the hydraulic mechanism used. The inside of the box also represents underground. In the real world this hydraulics will be controlled by a motor and the motor will be activated by sensors around the train tracts. Once a train reaches the sensors, the sensors will activate the motor that will make the hydraulics do their job. In my project I my hands will push the syringe to show how it will work.</p> <p>Results Results: The gates go up with the push of the syringe attached to the outside of the box to the syringe inside the box. My hydraulic gate did work as planned. I used a toy car to test my metal gate and my result was that the car did not cross over the gate.</p> <p>Conclusions/Discussion Conclusion: My project after all was able to work properly, but I did learn that in order for hydraulics; in general, to work they need an equal amount of liquid of some type. Also hydraulics rely on other hydraulics to do their job. I believe that this idea can save more lives and avoid more accidents between trains and motor vehicles.</p>	
Summary Statement My project is about how hydraulics can be used to improved railroad gates.	
Help Received I designed and built my project after i reseached how hydraulics work by warching a youtube video. I came up with the idea of improving the railroad gates by using hydraulics. My mother also help me built my model only when i had to use adult tools. I performed the experiment myself.	