



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

Name(s) Max Norden	Project Number J0218
Project Title Power from Water: A Study of Friction and Precipitation	
Abstract Objectives/Goals The objective of this experiment is to show how one can extract power from water. The experiment hypothesizes that, if you drip water through suspended silica dust onto a metal plate, then it will charge the copper plate 1 nanovolt per drip. Methods/Materials MATERIALS glass jar with stopper or lid, tap water, silica dust, steel sheet, copper sheet, aluminum sheet, acrylic sheet, PC oscilloscope, drip-valve METHODS Drip water into jar containing silica dust onto plates of 4 different materials. Record voltages on oscilloscope as drops land on sample materials. Results 10 water droplets fell through the silica dust on to each of the 4 sample plates. The experiment was repeated 5 times for each plate. The results showed that there was a greater mean voltage induced for the metal samples over the acrylic sample and that the greatest voltage was seen with the copper sample. Conclusions/Discussion The hypothesis: if you drip water through silica onto a metal plate, then it will charge the copper plate 1 nanovolt per drip appears not to be supported by this experiment. The accuracy to which this experiment was able to record data was in millivolts, not nanovolts. The static charge of each drop was unable to be registered, so this experiment relies on averaging data sets. The averaged data does show differences between the plate materials. The experiment appears to show that if you drip water through silica dust onto a copper plate, it will register a greater charge than if you were to drip it onto acrylic, stainless steel, or aluminum.	
Summary Statement This experiment is trying to show how one can extract power from water, by water droplets (rain) interacting with silica (dust) as they fall on to a copper plate inducing voltage.	
Help Received I designed and performed the experiment myself. My parents helped me with the drilling of the glass and learning the software used with the oscilloscope and presentation graphs. Mr. Lewis, my science teacher, reviewed my work and gave constructive feedback.	