



**CALIFORNIA STATE SCIENCE FAIR  
2016 PROJECT SUMMARY**

<b>Name(s)</b> Marta K. Olson	<b>Project Number</b> <b>J1312</b>
<b>Project Title</b> <b>Conductive Paint: Can You Resist?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Conductive Paint is paint that can conduct electricity. You can make it using graphite powder and glue. The purpose of this project is to create a conductive paint that works well on fabric and has low resistance. My hypotheses: If the ratio of graphite to glue is higher, then the resistivity of the conductive paint will be lower and it will be more brittle. If the conductive paint is made using acrylic paint, then the resistivity will be lower than if I used the other glues.</p> <p><b>Methods/Materials</b> In this project, I tested six different glues and three ratios. I tried to find the resistivity of each mixture. In my first test, I used troughs to create a known shape, and still let the glue fully cure. Some of the glues pulled away from the foil ends, so my measurements were inconsistent and probably inaccurate. In my second test, I painted the conductive paint on fabric and wood. I was able to calculate an approximate resistivity.</p> <p><b>Results</b> According to my first test, the acrylic paint samples had the lowest resistance. But in my second, more accurate, experiment, the Liquid Tape was the better material. It had the lowest resistivity and was more flexible than the other materials. Higher ratios of graphite had lower resistivity.</p> <p><b>Conclusions/Discussion</b> If you are using conductive paint, the best recipe according to my tests, is the 7:10 ratio (graphite to glue by weight) with Liquid Tape as the glue.</p>	
<b>Summary Statement</b> In this project, I tested different mixtures of powdered graphite and types of glue to develop an electrically conductive paint with low resistivity.	
<b>Help Received</b> I did not receive any help. I designed and performed my experiments on my own.	