



**CALIFORNIA STATE SCIENCE FAIR  
2016 PROJECT SUMMARY**

<b>Name(s)</b> <b>Elise S. Miller</b>	<b>Project Number</b> <b>J2210</b>
<b>Project Title</b> <b>Worms Can Survive a Drought. Can You?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> Due to the current drought conditions in California I wanted to see what the effects were on worms. <b>Methods/Materials</b> I made 15 individual worm environments. Five environments had a worm population living under normal soil conditions, five environments had a worm population where the moisture level fluctuated from normal to dry and five environments had worms living under drought conditions. I measured and recorded the moisture level every Tuesday, Thursday and Saturday. Every 21 days I examined each individual environment and took a census of the worm population. I repeated this process three times for a total of 63 days. <b>Results</b> Under drought conditions worms secrete a mucous membrane around themselves and go into a state of estivation, similar to what animals do in hibernation. By building the mucus membrane around themselves, they create a moist protective coating that allows the worms to survive drought conditions. The worm mortality rate under normal conditions was 0% all 125 worms survived. The worm mortality rate under the normal to wet conditions was 0% all 125 worms survived. The worm mortality rate under drought conditions was 12.8% over the 63 days leaving 109 worms surviving the drought conditions. <b>Conclusions/Discussion</b> The experiment proved my hypothesis true. Worms can survive a drought. With California experiencing its fifth straight year of drought conditions this is vital information. Soil with a worm population absorbs more water and decreases water runoff. This is vital to Earth's environment by benefiting the fauna and flora of the planet.	
<b>Summary Statement</b> This project was to prove worms can survive a drought.	
<b>Help Received</b> My parents Mr. James D. Miller Jr. and Mrs. Brenda K. Miller helped me gather all supplies I needed. My parents also critiqued my presentation.	