



# CALIFORNIA STATE SCIENCE FAIR 2011 PROJECT SUMMARY

<b>Name(s)</b> Carina W. Schipper	<b>Project Number</b> <b>J2214</b>
<b>Project Title</b> <b>The Effect of Heat on Eisenia fetida's Reproduction</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> I studied the effect of heat on Eisenia Fetida (also know as redworms) to find the temperature in which they reproduce best in. I predicted that Ensenia Fetida would reproduce best in the warmest temperature, because they are more active in heat.</p> <p><b>Methods/Materials</b> Over the course of 5 weeks, I counted the number of new worms in 4 diffrent containers (A, B, C and D). "A" was set at outside tempurature, "B" was put on a heater set at 70 degrees Farenheit, "C" was set a 75 degrees and "D" was kept at 80 degrees. Each container had 15 worms, a thermometer, and 1 pound of compost in it. Once transferred into their containers, the worms were given 1 week to ajust to their new environments. After the first week, I counted the number of worms and subtracted 15 from the total to see how many new worms there were. I used the worms from my brother's "Can-o-Worms" which he has had for over a year. For my containers I used four 5x5x3 tupperware containers, as suggeted by J. Michael Thompson, an annelid expert. I also chose not to use any temperature over 80 degrees because Patricia Lauber, author of "Earthworms:Underground Farmers" says anything over 83 degrees is harmful to the worms.</p> <p><b>Results</b> The reproduction rate of container A was 3 cocoons (each containing 3-5 worms) per week. COnainer B was slightly higher at 5 cocoons per week and container C was higher yet at 11 cocoons per week. Container D however had a low 1 cocoon per week. The worms in A acted normally and stayed in the middle of the container. Worms in B resided in the top and the bottom of the container and the worms in C were very active and were constantly moving throughout the container. The worms in D seemed to stay at the top of the container, as if to stay away from the heater.</p> <p><b>Conclusions/Discussion</b> The data I collected through my expirement did support my hypothesis, but only to an extent. Heat does increase Einsenias reproduction, but once the heat goes to 80 degrees Farenheit, the worms go into a coma-like state like the worms in container D. However, once removed from the heat, the worms went back to their normal behavior. Therefore, I am led to believe the heat was too intense for the worms. The result of my experiment is such: 77 degrees Farenheit is the optimal temperature for Einsenias Fetida, and any tempurature 80 degrees or over is too much for them to handle.</p>	
<b>Summary Statement</b> I studied how heat effects Einsenias Fetidas reproduction.	
<b>Help Received</b> Teacher advised on how to communicate results	