



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Bianca G. Landfield	Project Number S2206
Project Title The Plus Sign Trial: A Test of Cognitive Mapping Ability in Hermit Crabs	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The goal of this research is to determine if geometric or featural modules are more important in the cognitive mapping abilities of hermit crabs.</p> <p>Methods/Materials A black, wooden plus sign with darkness at the end of one arm and nothing at the end of the opposite arm was used in three different phases of this experiment. The hermit crabs starting position and the location of the darkness with respect to the plus sign were rotated in specific ways in each of the phases of the experiment to determine whether geometric or featural modules in the brain are more active when hermit crabs cognitively map out their environments.</p> <p>Results The average initial time it took the hermit crabs to reach the darkness in each trial was graphed, with interesting but inconclusive results. The average number of hermit crabs that reached the darkness in each trial was also graphed, with an interesting result: less hermit crabs reached the darkness in phase three of the experiment, when the location of the cloth was rotated.</p> <p>Conclusions/Discussion The results do not lead to any immediate or obvious conclusions, but the disruption in phase three of the experiment was an interesting result that I will be exploring further.</p>	
Summary Statement This project tests whether geometric or featural modules in the brain are more active when hermit crabs cognitively map out their environments.	
Help Received I worked in a lab in the UCLA Department of Psychology, with a visiting professor, Dr. W. David Stahlman, as my mentor.	