



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Rory Sawey	Project Number J2214
Project Title Which Way Little Crab?	
Abstract Objectives/Goals The purpose of my project was to find out if hermit crabs used the Earth's magnetic field to navigate. I hypothesized that hermit crabs navigated using the Earth's magnetic field based on observations noted in my previous science project. Methods/Materials To determine if hermit crabs navigated using the Earth's magnetic field, I set up 2 environments. Environment 1 was a control that used the Earth's natural magnetic field. Environment 2 had Neodymium magnets strapped to the bottom aligned in such a way, as to create a new magnetic field where a false East is actually true South and so on. For each experiment, the hermit crab was placed in the center of a large circular bucket facing true North every test. The first wall they touched was the direction recorded. The time they took was also recorded as an observation. I ran 4 trials in Environment I and 5 trials in Environment II using 5 Coenobita Clypeatus hermit crabs. Results The hermit crabs went the direction of East, even with a different magnetic field, showing that evidence they navigate using the Earth's magnetic field. When testing hermit crabs in the control environment they predominantly went East 68% of the time or 13 tests out of 19 total. When being tested in Environment 2 the hermit crabs went predominantly false East (true South) the most, 44% of the time or 11 tests out of 25 total. Conclusions/Discussion My results show conclusive evidence that hermit crabs do navigate using the Earth's magnetic field. In addition they have a tendency to go East. This data suggests that the hermit crabs are migrating somewhere, such as a breeding ground. This knowledge could be used to help and protect the species' survival.	
Summary Statement My project's purpose is to determine if hermit crabs navigate using the earth's magnetic field.	
Help Received My parent helped me edit my grammar and buy my materials.	