



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Chloe L. Eicher	Project Number J1907
Project Title Hermit Crab Response to Changes in Light Conditions	
Abstract Objectives/Goals My science project addresses hermit crab (<i>Coenobita clypeatus</i>) activity patterns and what factors trigger these patterns. I wanted to find out if I could change my pet hermit crabs' natural nocturnal activity pattern to diurnal. Methods/Materials Materials and Methods: First, I documented my two hermit crabs' (Flip and Flop) activity levels during natural light conditions. Then, I gradually altered the timing of the light so that their habitat was artificially light during the night and artificially dark during the day. I detected activity using a combination of direct and indirect evidence. I used a grid to map each hermit crab's location, and if the hermit crab had moved since my last recent observation, then I knew it must have been active. This was indirect evidence. Direct evidence was when I actually observed the hermit crab moving. I monitored ambient air temperature throughout the project. Results Results: During natural light conditions, nighttime activity was higher than daytime activity. During artificial light conditions, the hermit crabs were more active during the artificially dark period than during the artificially light period, although the level of difference may not be significant. Overall, hermit crab activity declined when light conditions were altered. Air temperature was slightly higher on the side of the habitat with an infrared heater, however, temperature did not vary between day and night anywhere in the habitat. Conclusions/Discussion Conclusions: The hermit crabs were able to adapt somewhat by changing the timing of their activity, however, I think their overall decline in activity was related to the stress of an unnatural change. Likewise, people who change the timing of their normal daily activity (e.g., people who work the night shift or people who fly to a different time zone) may experience stress-induced side effects such as fatigue.	
Summary Statement In response to altered light conditions, hermit crabs changed the timing of their activity and, overall, activity levels declined.	
Help Received My mom helped by providing advise.	