



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Alexandra L.E. Garcia	Project Number 22829
Project Title How Does Temperature Affect the Heart Rate of Crickets?	
Abstract Objectives/Goals To establish the relationship between temperature and the heart rate of crickets. Methods/Materials By gluing a rare-earth magnet to a cricket's abdomen and using a Hall Effect Transducer (HET) capable of reading movement in the .5 micron range. The movement of the insect's heartbeat was measured by observing voltage variations dependant on the distance between the magnet and the HET. The heartbeats were recorded by feeding the HET output voltage to the audio line-in input of a PC. To raise the temperature a heat lamp was used, and a thermometer recorded the change. Results For an increase of 4.4 C, the cricket's heartbeats increased by 44%. Conclusions/Discussion The cricket's heart rate went up with the environmental temperature. Perhaps the cricket's circulatory system is also a cooling system in which blood must go through a heat-radiating element (possibly its wings).	
Summary Statement The effect temperature has on the heart rate of a cricket.	
Help Received My father helped me build the amplifier.	