



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Maddie R. Wood	Project Number J2223
Project Title The Effect of Water Temperature on Goldfish Respiration	
Abstract Objectives/Goals The goal of my project was to see how water temperature affects goldfish respiration. My hypothesis was that when fish are put in warmer water their breathing speeds up and when fish are put in cooler water their breathing slows down. Methods/Materials My materials were two goldfish bowls, three goldfish, water, a thermometer, a net, ice and a microwave. I put one goldfish in fifty degree water and counted its breaths for one minute. Then I tested the rest of the goldfish the same way. After that I tested the goldfish one at a time in sixty degree water. On my last test I tested the goldfish in seventy degree water. Lastly I made a graph with my data. Results I found that when fish are put in warmer water their breathing speeds up and when fish are put in cooler water their breathing slows down. The average breaths for 50 degrees is 82, the average for 60 degrees is 90 breaths per minute and the average for 70 degrees is 110 breaths per minute. Conclusions/Discussion I found that my data supported my hypothesis. It is true that when fish are put in warmer water their breathing speeds up and when fish are put in cooler water their breathing slows down. I think that this research is valuable because it shows what might happen to fish in the ocean when the ocean heats up.	
Summary Statement My project shows how goldfish respiration reacts to different temperatures of water.	
Help Received My mom ran the timer while I counted the breaths of my fish. She also helped with editing at the end.	