



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Elena K. Houle	Project Number J2308
Project Title Do Fish Get Jet-Lagged?	
Objectives/Goals To begin, the purpose of my project was to investigate if changing the circadian rhythm of gold fish affects their memory. My first observation was when I removed the cardboard box of the fish on the disrupted circadian rhythm and found they were less active than the fish on the normal circadian rhythm. My hypothesis was that the fish on the normal circadian rhythm would learn the trick faster, and better than the fish on the disrupted circadian rhythm. When I first got my fish, I had to let them adjust to their surroundings before I began the experiment. For five days I trained my fish to swim through a hoop, next I changed the circadian rhythm. During those five days I put a box on top of one tank of fish during the day and switched the box onto the other tank of fish during the night. I changed the box every 12 hours, at 7a.m and at 7p.m. and training each tank of fish for 10 minutes a day. On the first day of training I got one fish to go through the hoop, it was the fish on the normal circadian rhythm. On the third day of the experiment I got another fish to go through the hoop, once again it was the fish on the normal circadian rhythm. On the fourth day I got one fish to go through the hoop that was on the disrupted circadian rhythm. The second fish on the disrupted circadian rhythm did not get through the hoop at all. The answer that I obtained was that the fish on the normal circadian rhythm learned the trick faster and better than the fish on the disrupted circadian rhythm. My hypothesis was correct about the fish on the normal circadian rhythm and how they were able to learn the trick faster and better.	
Abstract	
Methods/Materials Two fish tanks, four fish, cardboard box, and a metal hoop. I put two fish in each tank and put a box over one tank of fish tanks for twelve hours, then I put the box over the other tank for the same time. I found this project online but I changed some the variables. http://www.juliantrubin.com	
Results The results obtained were not so surprising. The fish on the normal circadian rhythm were able to go through the hoop faster and better than the fish on the disrupted circadian rhythm.	
Conclusions/Discussion After testing my fish numerous times, I have concluded that if you change the circadian rhythm of the fish they become jet-lagged.	
Summary Statement During a five day period I tested if fish could get jet-lagged by changing the circadian rhythm on tank (1) of the two fish tanks and then training the fish in tank (2) the second fish tank to do a simple trick, to go through a hoop.	
Help Received The internet was helpful because i found projects related to my topic and they helped me understand the relative behavior of fish, and after i purchased the fish i took note on how they behaved so the fish helped in a sense.	