



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

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Project Title Tick Tock, Let's Change the Mouse's Internal Clock	
Abstract Objectives/Goals The objective is to determine if having a partner will speed up the time it takes mice to change their internal clocks. Methods/Materials Six mice of identical ages and gender were placed in four containers. Two small containers had one mouse each and two large containers had two mice each. They were placed in two rooms. One room had artificial light and the other room had natural light. Both a large and small container were placed in each room. The temperature, feeding time and amount was the same for all mice. Mice were observed in both light and dark times for 10 minutes each for one week during which their activity level was recorded. The following week the light and dark periods were reversed with the use of artificial light. The mice were again observed during both light and dark times for 10 minutes each. Results The activity levels of the mice in the artificially lit room was the same as those in the room with natural light(active 8-9 minutes when dark and 2-3 minutes when light). This allowed me to change the light/dark cycle using artificial light. After the light/dark cycle was changed, mice with partners did not adjust to the time change. Those that were on their own appeared to adjust by reaching the goal activity level of 2-3 minutes when it was light, although they only reached an activity level of 7 minutes in the dark (goal was 8-9 minutes). Conclusions/Discussion My conclusion is that mice adjust to time changes faster if they are on their own rather than in an environment with a partnered mouse. This result can help people set up an environment for pet mice in the house so they will not disturb their owners. It may also help those studying the human sleep/wake cycle form hypotheses about how people might adjust to work shift changes or jet lag while travelling.	
Summary Statement To change the light/dark cycle and see if the internal clocks of mice with partners change faster than those on their own.	
Help Received Mother bought mice.	