



**CALIFORNIA SCIENCE & ENGINEERING FAIR  
2019 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jason Hepfer</b>	<b>Project Number</b> <b>S1208</b>
<b>Project Title</b> <b>Variations in Behavior Tendencies of House Mice as a Result of Gravitational Manipulation</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives</b> The objective of this study is to determine whether there is a correlation between the strength of gravity's pull and the energy that an organism requires to perform a task.</p> <p><b>Methods</b> Mouse habitat, stopwatch, and three house mice. I set up the habitat for my three mice and supplied them with food and water. I then transported them to several locations that varied in distance from the Earth's center of gravity and measured several aspects of their behavior at each of the locations.</p> <p><b>Results</b> As the mice's distance from the planet's center of gravity was increased, I witnessed a noticeable increase in the duration of the mice's physical activity, caloric intake, duration of social interactions, and number of aggressive interactions toward each other. When the mice were reintroduced to higher levels of gravity, their results indicated that they had become relatively lethargic and idle.</p> <p><b>Conclusions</b> That the mice could maneuver and perform tasks with relative ease in habitats with lessened gravity compared to habitats where the strength of gravity was higher indicates that organisms are able to perform tasks more easily and efficiently when the strength of gravity's pull is lessened.</p>	
<b>Summary Statement</b> I brought mice further and closer to the planet's center of gravity in order to test how mice would behave in reaction to varying levels of gravity.	
<b>Help Received</b> My chemistry teacher advised me on how I could eliminate various sources of error and extraneous variables such as temperature, oxygen levels, and exposure to light in order to make my project as controlled as possible.	