



# CALIFORNIA STATE SCIENCE FAIR 2017 PROJECT SUMMARY

<b>Name(s)</b> <b>Kayden E. Lincoln</b>	<b>Project Number</b> <b>J2311</b>
<b>Project Title</b> <b>Is Planarian Regeneration Affected by Magnetic Fields?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of my experiment was to show that if planarian were exposed to magnetic fields while regenerating they would regenerate faster.</p> <p><b>Methods/Materials</b> 24lb pull magnet, 10 plastic cups, 10 brown planarian (<i>Dugesia tigrina</i>), microscope, 10 clean razor blades, distilled water, petri dishes, and paper towels. I used a razor blade to cut planarian horizontally across the middle. I made observations under a microscope over the next 14 days and took detailed qualitative observations of the regeneration. I cut 5 planarian to produce 10 halves. Each planaria was placed in its own plastic cup. I place 5 cups on top of a 24 lb pull ceramic magnet and left them to regenerate for 14 days. Each day I made observations under the microscope. The other five cups were kept in the same room but on a counter about 5 ft away.</p> <p><b>Results</b> The results of my experiment were it did speed up planarian regeneration by 2 days from the average time it takes in all planarian. On average the planarian exposed to magnetic field regrew their heads within 5 days, whereas the planarian not exposed to magnetic field regrew in 8 days on average. Full regrowth was determined by a lack of clear blastoma cells, regrowth of organs near cut site, fully formed eyespots (on head portions), and pointed tail (on tail portions). Planarian exposed to the magnetic field showed regrowth of organs at 4 days on average, fully formed eyespots at 4.5 days on average, pointed tail at 5 days, and lack of clear blastoma cells at 5 days. Planarian not exposed to the magnetic field showed regrowth of organs at 6 days on average, fully formed eyespots at 6 days, pointed tail at 7 days, and lack of clear blastoma cells at 7 days.</p> <p><b>Conclusions/Discussion</b> By testing this I showed that planarian regeneration could be sped up by magnetic field. Although my sample size was small, if further testing showed consistent results, this could possibly lead to applications in human regeneration of tissue in the future.</p>	
<b>Summary Statement</b> I showed that planarian exposed to a magnetic field regenerated faster than those without the magnetic field.	
<b>Help Received</b> I cared for and made observations under the microscope myself. My father, Douglas Lincoln, helped me to use the razor blade and cut the planarian. My science teacher Mrs. Conklin helped me to understand the research and the process of regeneration in planaria.	