



**CALIFORNIA SCIENCE & ENGINEERING FAIR  
2018 PROJECT SUMMARY**

<b>Name(s)</b> <b>Maille R. Mansbridge</b>	<b>Project Number</b> <b>J1607</b>
<b>Project Title</b> <b>Bacteria on Turf and Grass Soccer Playing Surfaces</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The experiment was to measure which soccer playing surface (artificial turf, grass) cultured the most bacteria in a petri dish containing nutrient agar. It was expected that artificial turf fields would culture more bacteria as they are cleaned less often and the temperature they have is hotter and more suited to bacteria.</p> <p><b>Methods/Materials</b> Six soccer fields, three grass and three turf, were swabbed and the samples were transferred to a petri dish containing nutrient agar. Each set of grass and artificial turf fields was adjacent and received the same environmental changes. The cultures were placed in an incubator for 48 hours. After 48 hours the cultures were removed, measured, and disposed of properly.</p> <p><b>Results</b> The grass soccer fields cultured more bacteria in the petri dishes than the artificial turf soccer fields after 48 hours.</p> <p><b>Conclusions/Discussion</b> The conclusion is that the more nutrients contained in the playing surface the more bacteria the surface will contain. Grass soccer fields contain soil substrate that acts as a source of nutrients to bacteria while turf soccer fields have no soil and therefore less nutrients.</p>	
<b>Summary Statement</b> I measured the amount of bacteria on turf and grass soccer fields and concluded that grass contains more bacteria than turf.	
<b>Help Received</b> My seventh grade science teacher Robert Calderon was my mentor and allowed me to use his lab.	