



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

Name(s) Jack Nelson	Project Number J1513
Project Title Does Nitrogen Affect the Oil Production Rate in Cyanobacteria?	
<p style="text-align: center;">Abstract</p> <p>Objectives The objective of this study is to determine the effects of varying amounts of nitrogen on cyanobacteria oil production.</p> <p>Methods Tested the the affect of nitrogen on cyanobacteria by growing the cyanobacteria, then extracting the crude oil. Used cyanobacteria and varying amounts of nitrogen. Used a mortar and pestle to break the cell wall and release the lipids, and used a filtered the lipids.</p> <p>Results The oil produced was compared after growing and extracting the lipids from the cyanobacteria. The nitrogen showed to be unhelpful in the production of oil in cyanobacteria.</p> <p>Conclusions The nitrogen reduced growth, and oil production. This means that the nitrogen is harmful against cyanobacteria.</p>	
Summary Statement I tested the effect of varying amounts of nitrogen on cyanobacteria oil production.	
Help Received None. I tested, and performed the experiments myself.	