



**CALIFORNIA STATE SCIENCE FAIR  
2016 PROJECT SUMMARY**

<b>Name(s)</b> <b>James L. Pinto</b>	<b>Project Number</b>  36806
<b>Project Title</b> <b>Did Juvenile Spinosaurids Spend Time in the Water?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> I wanted to find out if juvenile Spinosaurus dinosaurs spent a higher amount of time than most dinosaurs in ocean water.</p> <p><b>Methods/Materials</b> Five juvenile Spinosaurus tooth fossils, one Deltadromeus tooth, one Mosasaur tooth, isotope ratio mass spectrometer, freeze dryer vacuum chamber, vacuum roaster. The ratios of oxygen isotope 16 and oxygen isotope 18 were compared in each of these teeth.</p> <p><b>Results</b> The oxygen isotope ratios of the Spinosaurids exhibited extreme variance compared to the Deltadromeus and the Mosasaur, which implies that, depending on where they lived, Spinosaurids may have spent time in oceans and/or freshwater lakes and rivers.</p> <p><b>Conclusions/Discussion</b> The data I obtained did not completely support my hypothesis. I thought that the Spinosaurids would all have oxygen isotope ratios closer to the oceanic creature, the Mosasaur, but they instead had extremely varying oxygen isotope ratios. This data adds to evidence about how the Spinosaurus lived, and how it fit into its ecosystem along with all of the other dinosaurs it lived with.</p>	
<b>Summary Statement</b> By comparing the oxygen isotope ratios of fossilized dinosaur teeth, I found that Spinosaurus dinosaurs spent varying amounts of time in oceans and rivers depending on where they lived.	
<b>Help Received</b> Used lab equipment from the University of California, Santa Cruz under the supervision of researchers Dyke Andreasen and Colin Carney.	