



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

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<b>Project Title</b> Action of Refraction	
<b>Objectives/Goals</b> The objective was to determine if light, passing through a prism filled with water refracts more when the density of the water inside of a prism is increased. I believe that as the density of water is increased the light will refract more and have a higher index of refraction. <b>Abstract</b> <b>Methods/Materials</b> I constructed a glass equilateral prism. It was placed on a paper taped to a counter and I placed a laser behind the prism. I then taped a piece of paper to the wall directly in front of the prism. With the prism filled with air I turned the laser on and marked the point it struck on the paper in front of it. I then filled the prism with water only, 5%, 10%, and 15% solutions of sugar and water. With the prism filled with one of the mediums I turned the laser on and marked the point on the paper in front of it. This procedure was repeated three times for water, each of the solutions and when the prism was filled with air. <b>Results</b> The laser passed straight through the prism when it was filled with air. The index of refraction was 1. When the light went through the prism filled with water the index of refraction was 1.33. This means that light traveling through air travels 1.33 times faster than when it is traveling through water. The solutions of 5%, 10%, 15% produced indices of refraction of 1.36, 1.38, and 1.4. Notice the equal .02 increment of the index of refraction corresponding with the equal 5% increments of the density of water. The equal increments were not only measured by the index of refraction but you could visually see it by measuring the equal distance the light moved over on the wall with each change in density. <b>Conclusions/Discussion</b> The light refraction increased as the density of the medium increased. Equal increments in density yielded equal increases in the refraction of the light.	
<b>Summary Statement</b> It is about measuring the increase in light refraction when the density of the medium that it passes through is increased.	
<b>Help Received</b> None	